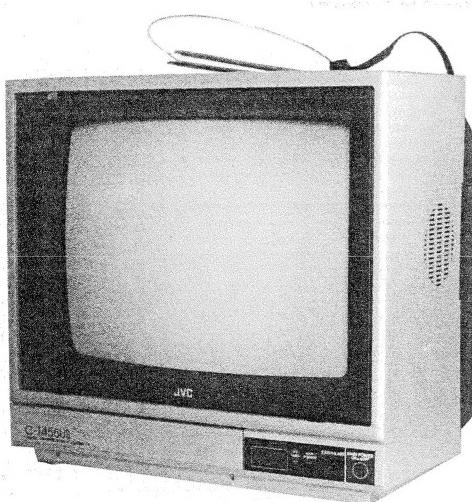


JVC

SERVICE MANUAL

13" COLOR TV

MODEL C-1455US/C-1455CA



CONTENTS

Safety Precaution	2
Features	2
Outline	2 ~ 3
Function	4 ~ 5
How to Demount for Service	5
Service Adjustment	6 ~ 7
Alignment by means of Instrument	7
Replacement Parts List	8 ~ 14
[Exploded View]	11 ~ 14
Packing Diagram	15
* With SCHEMATIC DIAGRAM	
* With SERVICE ADJUSTMENT	

SPECIFICATIONS

Dimension : (H) 35.0 cm x (D) 37.9 cm x (W) 37.0 cm	
Weight : 10.0 kg	
TV System & Color System	
VHF/UHF	CCIR(M), NTSC
TV Receiving Channel & Frequency	
VL Band (2 ~ 6)	54 MHz ~ 88 MHz
VH Band (7 ~ 13)	174 MHz ~ 216 MHz
UHF Band (14 ~ 83)	470 MHz ~ 890 MHz
Intermediate Frequency	
Video IF Carrier	45.75 MHz
Sound IF Carrier	41.25 MHz (4.5 MHz)
Color Sub Carrier	3.58 MHz
ANT. Input Impedance	75 Ω Unbalanced (VHF) 300 Ω Balanced (UHF)
Power Input	AC120V, 60 Hz
Power Consumption	87 W (max.) 60 W (Avg.) (C-1455US)

Input Current	1.15A (C-1455CA)
Picture Tube	13" In-Line, Black Stripe, Quick Start (C-1455US)
Speaker	14" In-Line, Black Stripe Quick Start (C-1455CA)
Viewable Picture Size	(W) 28.1 cm x (H) 21.1 cm
High Voltage	23.5 kV ± 1 kV (at zero beam current)
Audio Power Output	8 cm round type, 8 Ω 1.2 W
Tube	1
IC	9 (in TV), 1 (in Remocon)
Transistor	19 (in TV), 2 (in Remocon)

(Design and specifications subject to change without notice)

SAFETY PRECAUTION

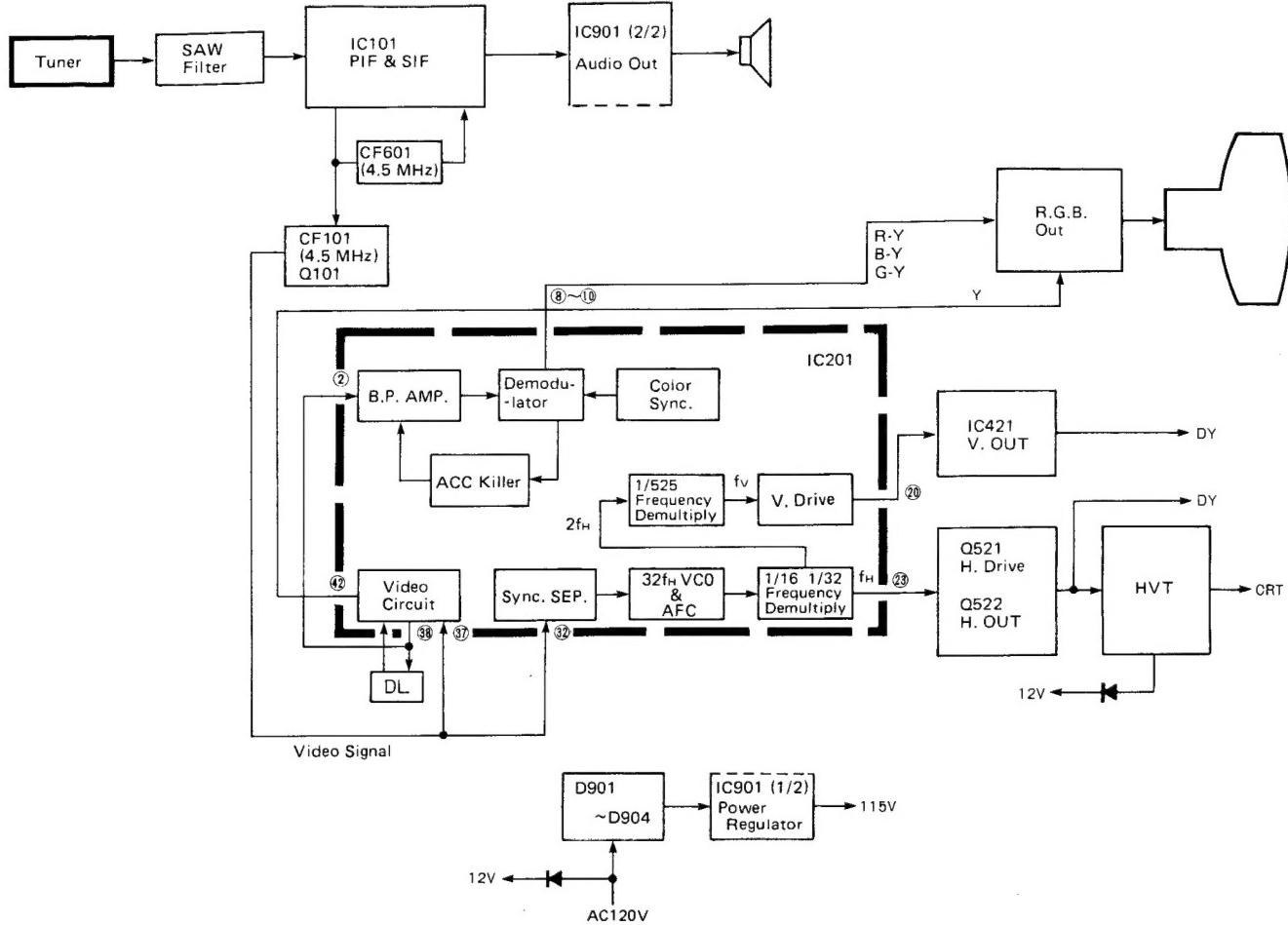
- As for safety precautions including electric shock prevention, use of designated components, or safety inspection after servicing, refer to the appended NTSC (No. 830510).

FEATURES

- Adopts IC's into which video, sync, and chroma circuits are one-pack incorporated.
- Also employed is a new-type chassis mounted with a one-chip microcomputer for sensor control.
- On-screen display of channels and sound volume.
- Provided with a 60-min. OFF timer.
- Remote-control device facilitates selections on channels, sound volume, power ON/OFF, muting, OFF timer, and on-screen adjustment.
- Convenient AV channel for use when a VTR or a video disc player (VHD) is connected.
- Channel display button permits free changing of channel displays.

OUTLINE

- IC201 μPC1401C**



Video, sync, and chroma circuits are incorporated into a (42) pin LSI, eliminating the need for adjusting color sync, V. sync, and H. sync.

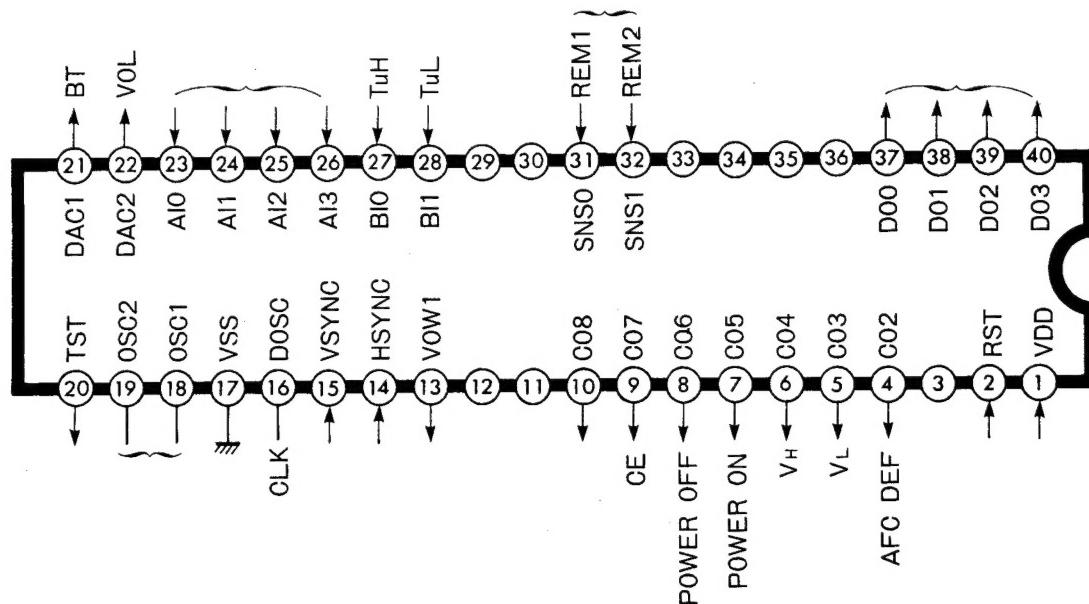
1. Video signals image-detected by the IC101 are input through the No. (32) and No. (37) pins.

Those signals input through the No. (37) pin are subjected to pedestal clamping/picture adjusting and output through the No. (38) pin. After being delayed by the DL201, these signals are once more input into the IC101, subjected to brightness adjustment and amplification, and then distributed to respective chroma output circuits through outputting from the No. (42) pin (Y signals).

On the other hand, the other group of signals passes through the BPF, is input through the No. (2) pin, and is demodulated after being subjected to BP amplifying by the chroma signal circuits, outputting color difference signals through the No. (8), (9) and (10) pins. Meanwhile, those signals input through the No. (32) pin—namely, sync signals are separated by the sync separation circuits and input into the AFC.

2. The 32 f_H oscillation circuit is a free-run type requiring no adjustment by the VCO using a CF501 ceramic filter. H. frequency is obtained by dividing it into 1/32, while V. frequency is obtained by dividing it into 1/525 after effecting 1/16 frequency demultiplication.

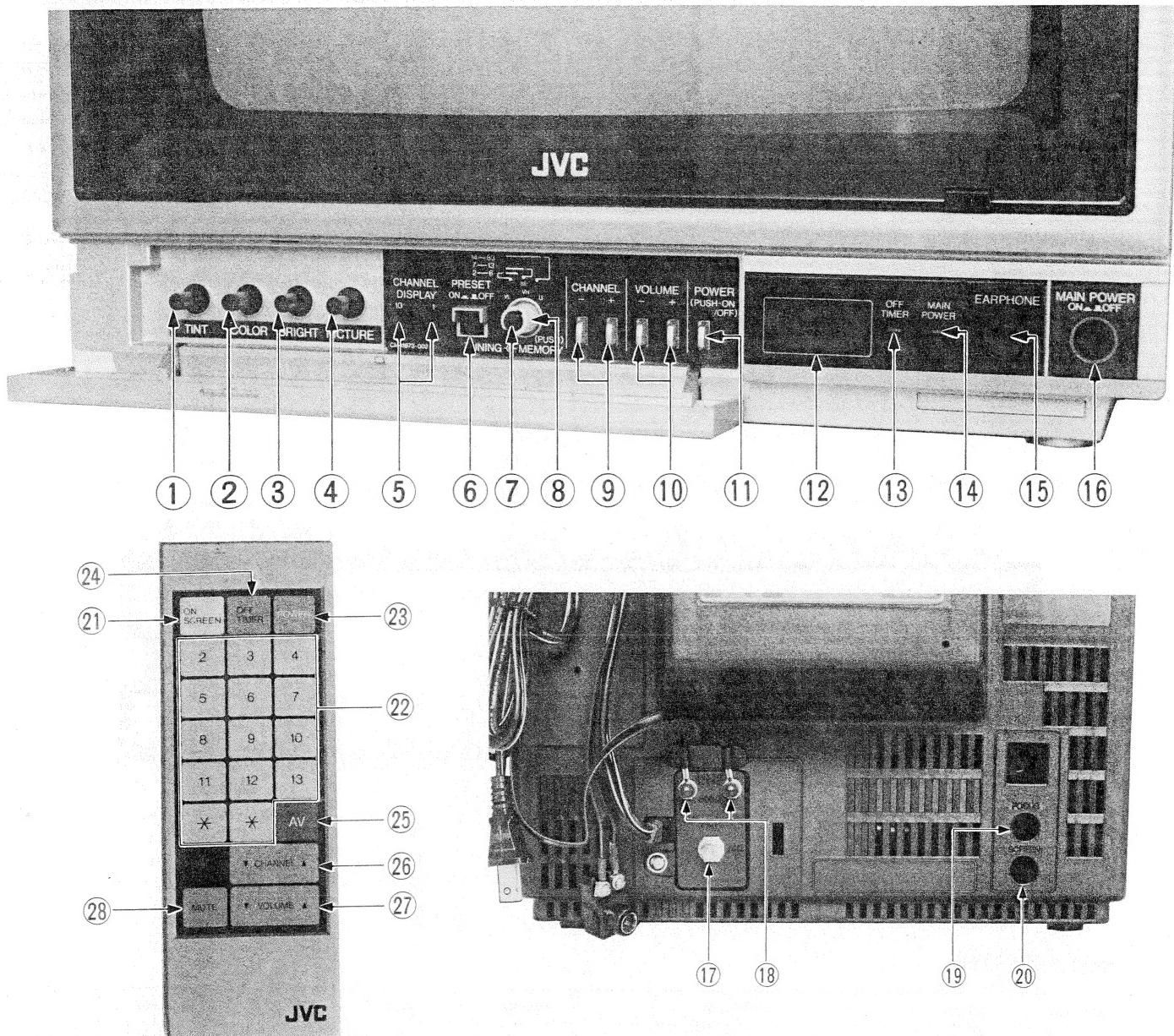
• IC721 SENSOR CONTROL IC



PIN FUNCTIONS

Pin No.	Name	Function	Pin No.	Name	Function
1	VDD	+5V power supply input	16	CLK (DOSC)	Oscillation terminal for on-screen display
2	RST	Reset input	17	GND (VSS)	Grounding
		Resetting under "L" with main power supply "ON"	18	(OSC2)	{ External-connection terminal for CPU clock oscillation
4	AFC DEF (C02)	AFC defeat output	19	(TST)	circuit (500 kHz)
5	VL (C03)	Band switching output	20	BT(DAC1)	OFF timer display output
6	VH (C04)	"	21	VOL (DAC2)	Tuning DA converter output
7	POWER ON (C05)	Power supply "ON" output	22		Sound-volume-controlling
8	POWER OFF (C06)	Power supply "OFF" output	23 ~ 26	(AI0 ~ AI3)	DA converter output
9	CE (C07)	Chip enable output	27	TuH (BI0)	4-bit key scan input
10	(C08)	Program output	28	TuL (BI1)	{ Tuning signal input (input
13	(VOW1)	On-screen display letter output	31	REM1 (SNS0)	from presetting comparator)
14	(HSYNC)	H. sync signal input (negative polarity)	32	REM2 (SNS1)	{ Remote-controlled data input
15	(VSYNC)	V. sync signal input (negative polarity)	37 ~ 40	(D00 ~ D03)	4-bit key scan output

FUNCTIONS



- | | | | |
|--------------------|---------------------|-----------------------|----------------------|
| 1. TINT | 8. TUNING VR | 15. EARPHONE | 22. CHANNEL (2 ~ 13) |
| 2. COLOR | 9. CHANNEL | 16. MAIN POWER | 23. POWER |
| 3. BRIGHT | 10. VOLUME | 17. VHF ANT. TERMINAL | 24. OFF TIMER |
| 4. PICTURE | 11. POWER | 18. UHF " " | |
| 5. CHANNEL DISPLAY | 12. REMOCON WIND | 19. FOCUS | 25. AV CHANNEL |
| 6. PRESET | 13. OFF TIMER IND. | 20. SCREEN | 26. CHANNEL |
| 7. MEMORY | 14. MAIN POWER IND. | 21. ON SCREEN | 27. VOLUME |
| | | | 28. MUTE |

■ AFT

No exclusive AFT < ON ↔ OFF > switch is provided on this TV unit; however, by setting the preset button "ON", the AFT circuit can be switched "OFF".

■ AV CHANNEL

- The AV channel can be preset similarly to the tuning channel.

Thus, when a VTR or a video disc player (VHD) is connected with the RF, this AV channel can be used as an exclusive channel for the connected device.

- The memory presetting method is identical to the "channel presetting method."

* Prior to shipment from the factory, the AV channel is preset in the same manner as channel 3.

■ CHANNEL MEMORY PRESETTING

1. Press the preset button "ON".
2. Press the channel button (on remote-control device) of the desired channels.
3. Preset the band changing switch as follows:
 For memorizing channels 2 ~ 6 → VL
 For memorizing channels 7 ~ 13 → VH
 UHF (14 ~ 83) → U
4. Rotate the tuning knob and receive pictures from those broadcasting stations desired to be memorized.

5. By pressing the channel display button, display the channel number of the broadcasting station from which the picture was displayed.
 6. Press the memory button (the channel display flickers once).
 7. After completing the memorizing of all desired station channels, press the preset button "OFF".
- * Prior to shipment from the factory, standard presetting to permit sequential channel changing from channel 2 through 13 is applied to the TV units.

HOW TO REMOVE FOR SERVICE

■ REMOVING THE REAR COVER

1. Remove the five screws **A** shown in Fig. 1 and detach the rear cover by pulling it backward.
- * When reinstalling the rear cover, carefully push it inward after inserting the main PC board into the rear cover groove.

■ REMOVING THE CHASSIS

- * After removing rear cover
- 1. Withdraw the chassis backward along the rail after removing the wires and the connectors (if necessary).
- 2. During component checking or replacement, place the chassis as shown in Fig. 2.
- * Fig. 2 is an example of placing the chassis.
 When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT socket board and the chassis.

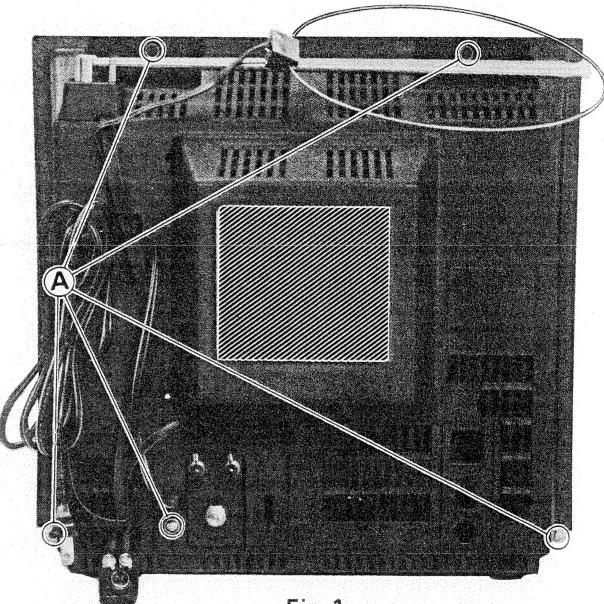


Fig. 1

■ WIRE CLAMPING AND TYING BAND

1. Be sure to clamp the wire.
2. Never remove the tying band used for wire clamping. Should it be removed, be sure to reclamp the wire in its original position.
 (Be sure to use insulating material.)

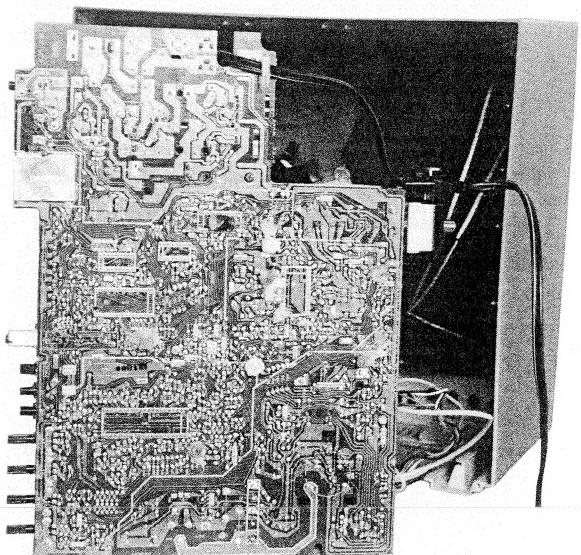


Fig. 2

SERVICE ADJUSTMENTS

Regarding general or chrome adjustments, refer to the appended NTSC (No. 830570).

As for the test points and respective volume adjusting knob positions, refer to the schematic diagram and the section on "alignment locations" appearing in the same diagram.

As to the following items, observe the respective instructions given herein.

■ B1 VOLTAGE

Confirm that voltage between the TP-91 (No. 6 pin of IC901) and the ground is 130V.

■ ON-SCREEN (See. Fig. 1)

1. Display letters on the screen.
2. As shown in the figure, adjust the letter positions with the CLK VR (ON-SCREEN ADJ. VR, R723).
3. Confirm that the letters are also located approximately at the same positions on other channels.

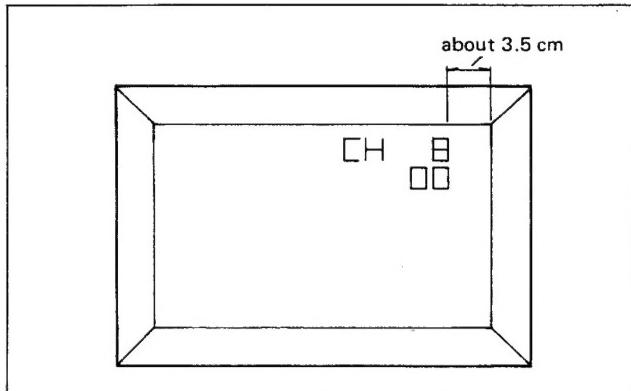


Fig. 1

■ SUB PICTURE

1. Receiving a TV program.
2. Set the PICTURE knob to the central position respectively (where they click).
3. Then adjust the SUB PICTURE VR until an ideal picture is obtained.

■ DOC ADJUSTMENT (C-1455CA ONLY)

This color TV unit is provided with a special tuning voltage control function through software programming to enable the unit to conform to DOC Standards. Providing this function makes it essential to reset the limiter voltage after the tuner or the memory IC (MN1219) has been replaced.

Observe the following procedures to reset the limiter voltage. (See, Fig. 2)

1. Use a jumper wire to connect the TP-99 with the grounding terminal (DL line shield casing or other section).
2. Press the preset switch "ON" and set the band switch at "VH".
3. Receive channel 13 pictures by rotating the tuning VR.
4. Rotate the tuning VR 6 turns clockwise and effect memorizing by pressing the memory button.
5. Rotate the tuning VR counterclockwise and receive channel 7 pictures.
6. Further rotate the tuning VR 1.5 turns counterclockwise and effect memorizing by pressing the memory button.
7. Disconnect the jumper wire.
8. According to the channel memory setting method (See page 5), memorize the desired station channel.
9. After memory setting of all desired station channels is completed, press the preset button "OFF".

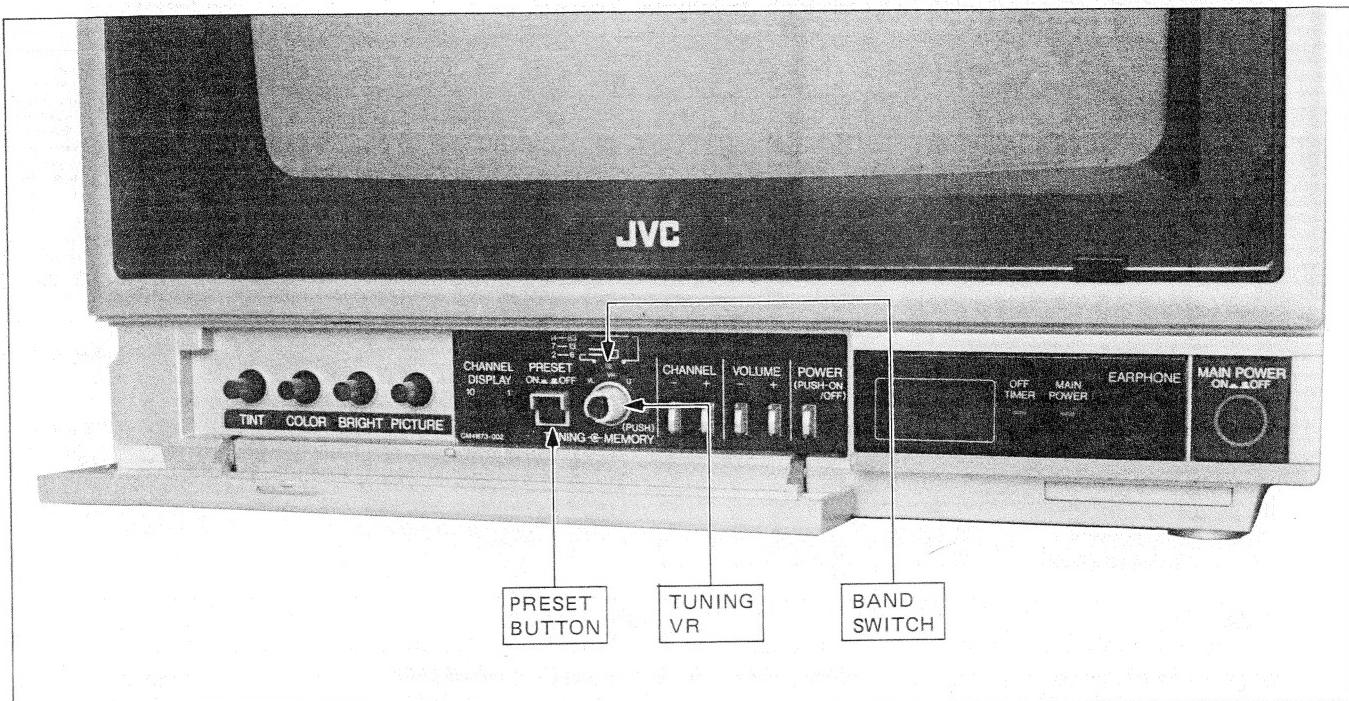


Fig. 2

ALIGNMENT BY MEANS OF INSTRUMENTS

P. IF

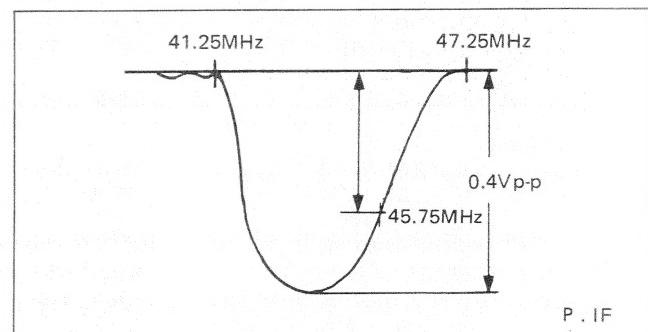
■ CONNECTION AND OTHER PRELIMINARY PROCEDURES

SWEEPER PROBE OUTPUT TERMINAL	OSCILLOSCOPE INPUT TERMINAL	POWER SUPPLY		BIAS POWER SUPPLY 7V ~ 9V	OTHERS
		B2 Power			
TP-11 (P.IF INPUT)	TP-12	(TP-94 B2 Power Line)		TP-14	

1. Make connections as indicated above and switch the sweep generator to the P. IF band.
2. Adjust the sweep generator output so that the P. IF waveform shows 0.4Vp-p (values vary as adjustment is attempted. Keep adjusting until 0.4Vp-p is constantly maintained).

■ ALIGNMENT

1. Adjust T102 so that the value on the 45.75MHz marker is maximized.



- * Regarding alignment other than the above (RF-AFC, S.IF), refer to the appended NTSC (No. 830510). As for the bias power supply, 7 ~ 9V is appropriate. As to the test points (TP) not provided within the PC board interior, locate those points by referring to the schematic diagram.

REPLACEMENT PARTS LIST

SX-1121A (C-1455US)/SX-1122A (C-1455CA) MAIN PB ASS'Y

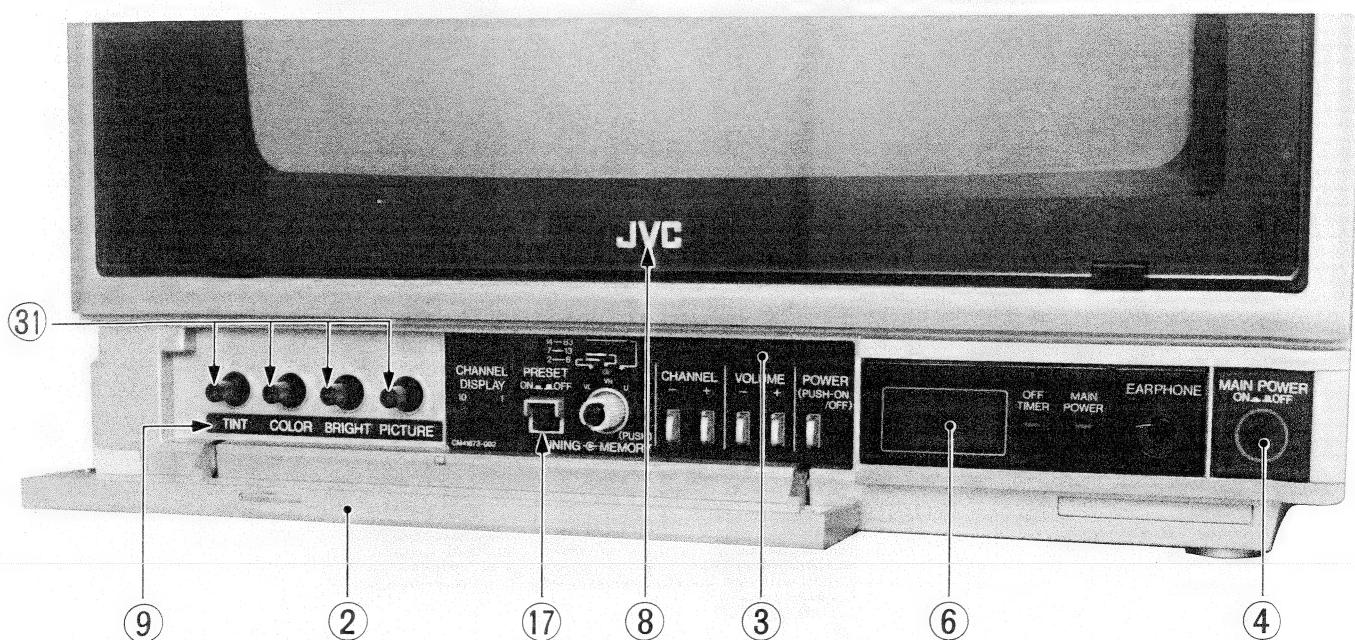
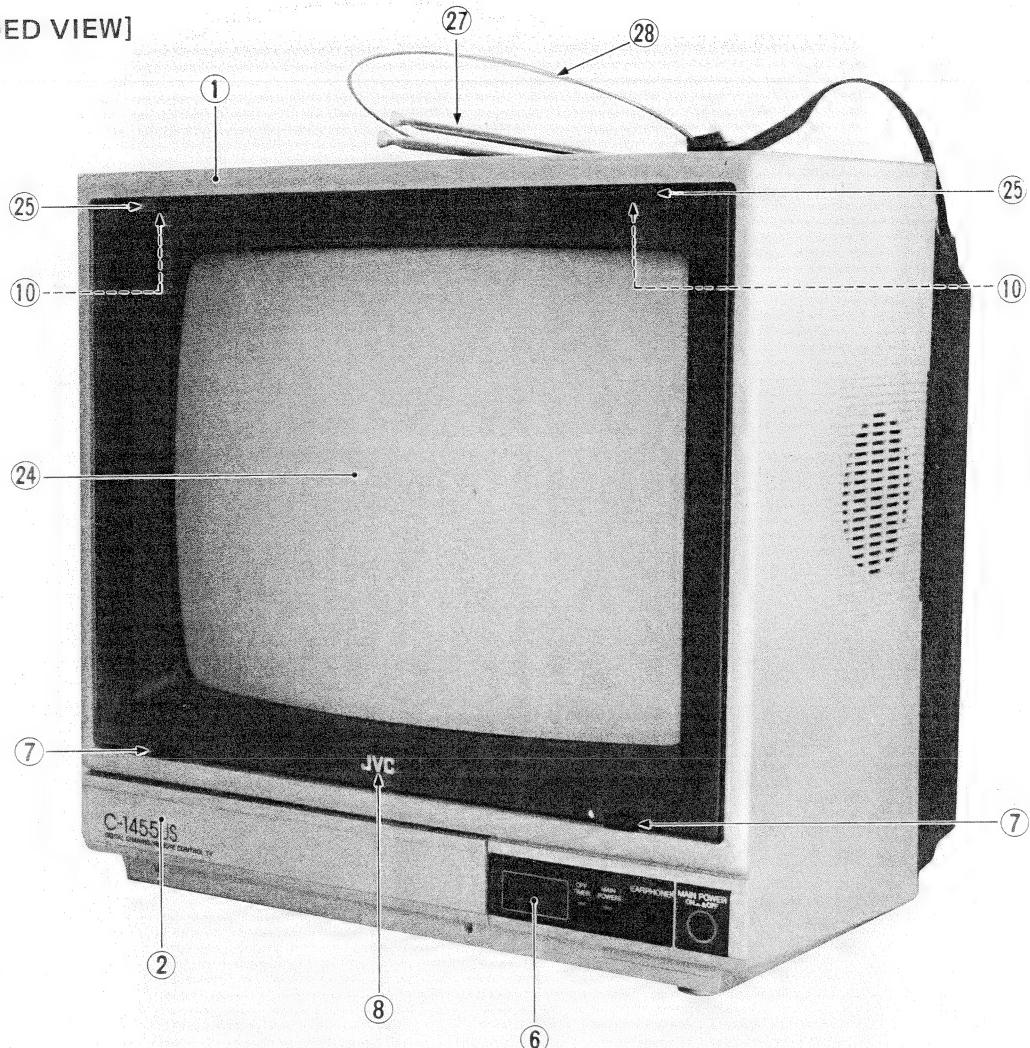
SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
VARIABLE RESISTOR									
R1104		CEX40197-014	VR (Noise)	10kΩ B	C1527	△	QET52CR-475	E Cap.	4.7μF 160V R
1230		CEX40119-B14M	" (Bright)	" "	1529		QFZ0067-534S	MPP Cap.	0.53μF 200V K
1231		CEX40197-023	" (Sub Bright)	2kΩ "	1551		QET52AR-105S	E Cap.	1μF 100V R
1240		CEX40119-B14M	" (Picture)	10kΩ "	1622	△	QET52AR-106	"	10μF " "
1241		CEX40197-014	" (Sub Picture)	" "	1624	△	QET52AR-106	"	" "
1330		CEX40119-B14M	" (Tint)	" "	1625		QET62CR-105Z	E Cap.	1μF 160V "
1333		CEX40119-B14M	" (Color)	" "	1901	△	QCZ9014-472A	C Cap.	4700pF AC125V
1341		CEX40197-014	" (Sub Tint)	" "	1902	△	QCZ9014-472A	"	" "
1342		CEX40197-014	" (Sub Color)	" "	1903	△	QCZ9014-472A	"	" "
1352		CEX40202-053	" (B. Cutoff)	5kΩ "	1904	△	QEY72DM-567M	E Cap.	560μF 200V M
1354		CEX40202-053	" (G. Cutoff)	" "	1905	△	QFZ9020-473M	MF Cap.	0.047μF
1356		CEX40202-053	" (R. Cutoff)	" "	1906	△	QFZ9020-473M	"	"
1369		CEX40202-022	" (G. Drive)	200Ω "	1907		QET52CR-106	E Cap.	10μF 160V R
1371		CEX40202-022	" (R. Drive)	" "	1921	△	QET52ER-475	"	4.7μF 250V "
1404		CEX40197-013	" (V. Height)	1kΩ "	1531	△	QET51VR-227	"	220μF 35V "
1701		A76104-20K	" (Tuning)	" "	1532	△	QET51ER-477	"	470μF 25V "
1723		CEX40202-023	" (CLK)	2kΩ B	1922	△	QET61ER-107Z	"	100μF "
RESISTOR									
R1011	△	QRG029J-822	OM R	8.2kΩ 2W J	L1102		CE40143-1R0	Peaking Coil	1μH
1357		QRG019J-153S	"	15kΩ 1W "	1103		A76186-15Z	"	15μH
1358		QRG019J-153S	"	" "	1105		A76186-8.2Z	"	8.2μH
1359		QRG019J-153S	"	" "	1120		CE40143-1R0	"	1μH
1410		QRX019J-4R7S	MF R	4.7Ω "	1121		CE40143-R47	"	0.47μH
1509		QRG029J-153A	OM R	15kΩ 2W "	1201		CE40547-330	"	330μH
1516		QRG029J-153A	"	" "	1301		A76186-2.7	"	2.7μH
1520	△	QRD149J-1R0S	C R	1Ω 1/4W "	1303		A76186-15Z	"	15μH
1524	△	QRG029J-123	OM R	12kΩ 2W "	1351		QLQ043K-181	"	180μH
1526		QRG019J-472S	"	4.7kΩ 1W "	1521		CE40037-560	HVT Choke	"
1530		QRG019J-270S	"	27Ω "	1522		CE40037-560	"	"
1531		QRG039J-270A	"	" 3W "	1520	△	CE40037-230	Choke Coil	23μH
1532		QRG039J-220A	"	22Ω "	1523	△	CE40037-230	"	23μH
1551		QRG019J-102S	"	1kΩ 1W "	1721		A76186-2.2Z	Peaking Coil	2.2μH
1574	△	QRX019J-4R7S	MF R	4.7Ω "					
1575	△	CJ39520-00M	R Block						
1753		QRG019J-682S	OM R	6.8kΩ 1W J					
1901	△	QRF076K-2R0	UNF R	2Ω 7W K	T1102		A75899	CW Transf.	
1904	△	QRD149J-123S	C R	12kΩ 1/4W J	1103		A75588-B	AFC Transf.	
1921	△	QRD149J-102S	"	1kΩ "	1301		A75196	3.58 BP Transf.	
1905	△	QRF204J-221	UNF R	220Ω 20W "	1521		CEX40133	Hor. Drive Transf.	
1907	△	QRX029J-2R2A	MF R	2.2Ω 2W "	1522	△	CE40503-00A	HV Module	
1924	△	QRG039J-102A	OM R	1kΩ 3W "	1601		A75583	S Take off Transf.	
1925	△	QRG039J-102A	"	" "	1602	△	CE40121-101	SIF Transf.	
1908	△	QRD149J-221S	C R	220Ω 1/4W "	1621	△	CE40500-00A	S O T	
					1781		CE40304-001	BP Transf.	
CAPACITOR									
C1005		QEC01HM-104MZ	E Cap.	0.1μF 50V M	D1001		1SS133-Y	Si. Diode	
1110		QCT25CH-121AZ	C Cap.	120pF ". J	1031		1SS133-Y	"	
1111		QCT25CH-180AZ	"	18pF "	1201		1SS131-Y	"	
1113		QEC01HM-224MZ	E Cap.	0.22μF " M	1203		1SS133-Y	"	
1115		QEM51CK-476M	"	47μF 16V K	1204		"	"	
1201		QEN61HM-475Z	BP E Cap.	4.7μF 50V M	1231		"	"	
1306		QFZ0083-104MZ	M Cap.	0.1μF " K	1421		1SR35-100-Z	"	
1308		QEN61HM-335Z	BP E Cap.	33μF " M	1501		MA4120(M)-Y	Zener Diode	
1355		QCZ9017-102M	C Cap.	1000pF DC3000V P	1521	△	RH-1S-Z	Si. Diode	
1423		QEU51VM-107M	E Cap.	100μF 35V M	1531		U19E	"	
1426		QFV81HJ-154M	T F Cap.	0.15μF 50V J	1551		1SS131-Y	"	
1511		QFZ0083-683MZ	M Cap.	0.068μF " K	1571	△	HZ7B2LV1	Zener Diode	
1523	△	QET52CR-336	E Cap.	33μF 160V R	1572	△	1SR124-400-Z	Si. Diode	
1526	△	QFZ0081-5801S	MPP Cap.	5800pF DC1600V ±3%	1701		1SS133-Y	"	

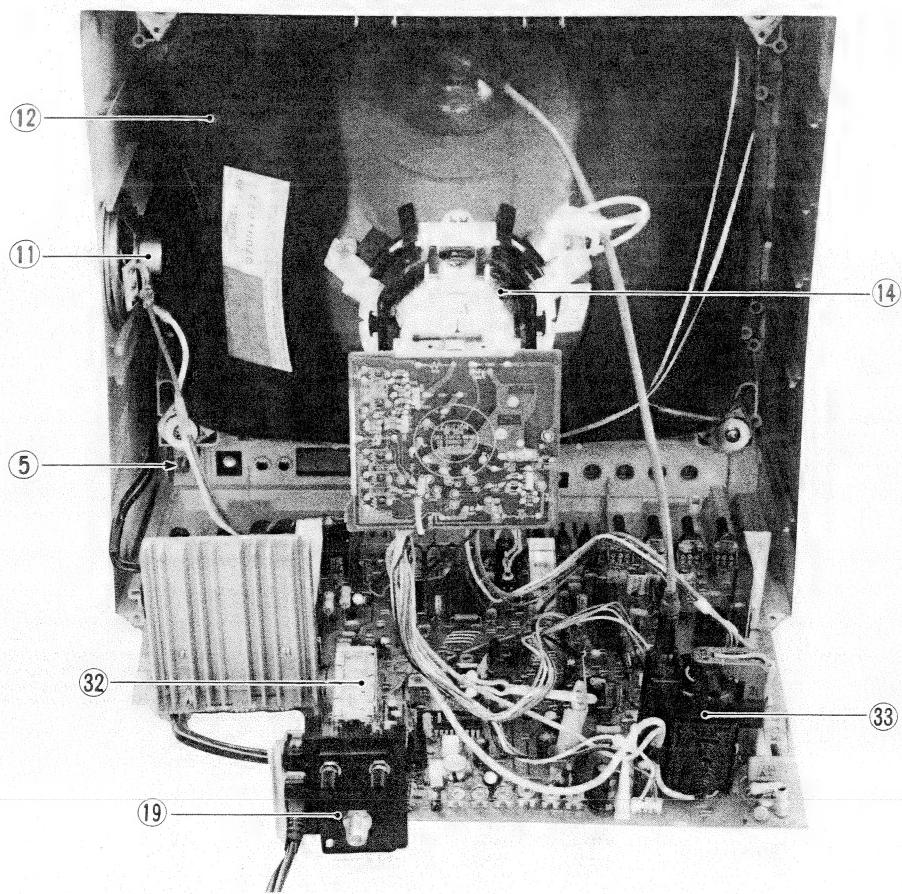
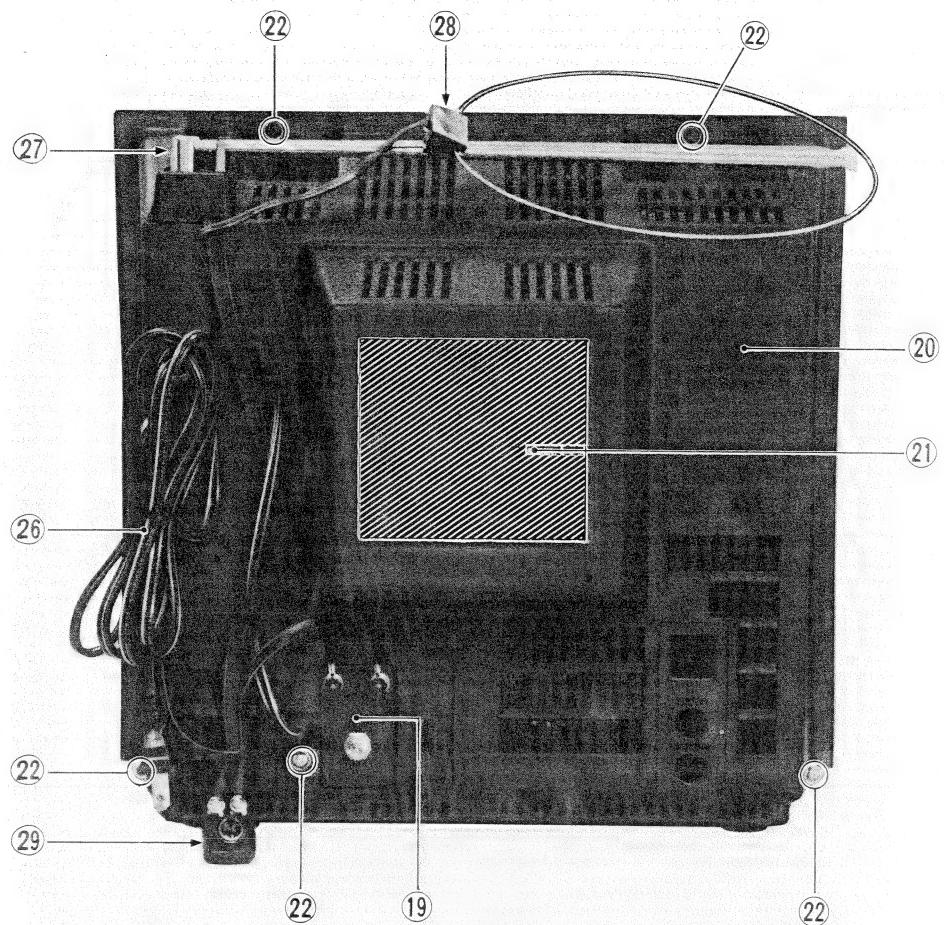
SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
D1702		1SS133-Y	Si. Diode		Q1765		2SA1015(Y,GR)	Si. Transistor	
1703		1SS133-Y	"		1921		2SC3187	"	
1704		1SS133-Y	"		1922		2SC3187	"	
1706		SEL1910D	LED	Off Timer					
1707		1SS133-Y	Si. Diode						
1711		1SS133-Y	"						
1712		1SS133-Y	"						
1713		1SS133-Y	"						
1720		1SS133-Y	"						
1721		1SS133-Y	"						
1741		1SS133-Y	"						
1751		MA4047(M,H)-Y	Zener Diode						
1753		MA4270(M)-Y	"						
1762		1N34A	Ge Diode						
1781		PD48PI1	Photo Diode						
1791		1SS133-Y	Si. Diode						
1901	△	1S1887A-Z	"						
1902	△	1S1887A-Z	"						
1903	△	1S1887A-Z	"						
1904	△	1S1887A-Z	"						
1921	△	1S1887A-Z	"						
1922		1SS146-Y	"						
1923		GL-5PR2	LED						
1924		RD12F(B1)	Zener Diode	Main Power					
1722		1SS133Y	Si. Diode	C-1455CA only					
TRANSISTOR									
Q1001		2SK105(E,F)	FET						
1101		2SA1015(Y,GR)L	Si. Transistor						
1120		2SC1360	"						
1321		2SC1815(Y,GR)L	"						
1351		2SC3187	"						
1352		2SC3187	"						
1353		2SC3187	"						
1381		2SC3187	"						
1521		2SC3187	"						
1522	△	2SD1426	"						
1721		2SC1815(Y,GR)	"						
1722		2SC1815(Y,GR)	"						
1761		2SC1815(Y,GR)	"						
1762		2SA1015(Y,GR)	"						
1763		2SC1815(Y,GR)	"						
1764		2SC1815(Y,GR)	"						

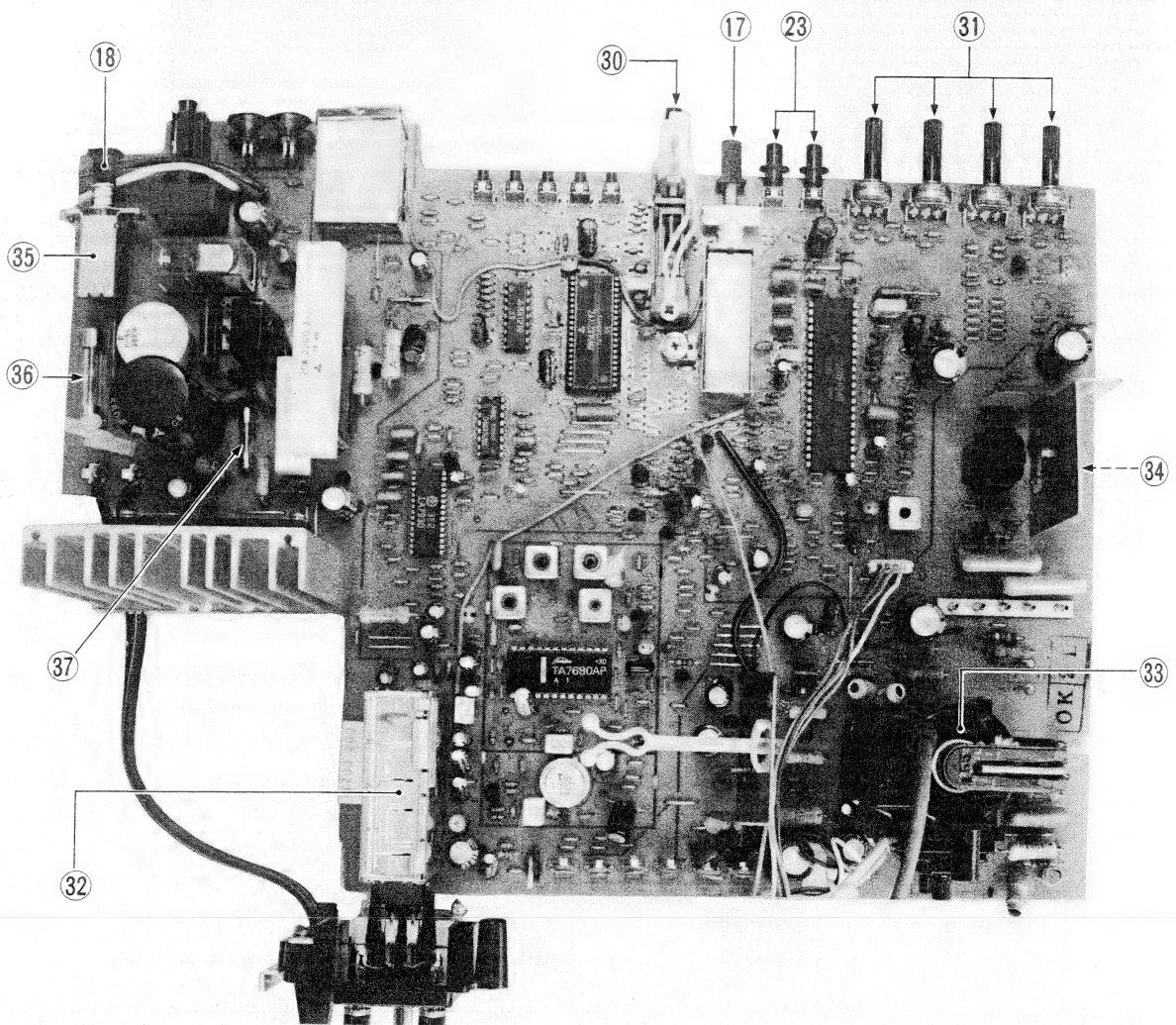
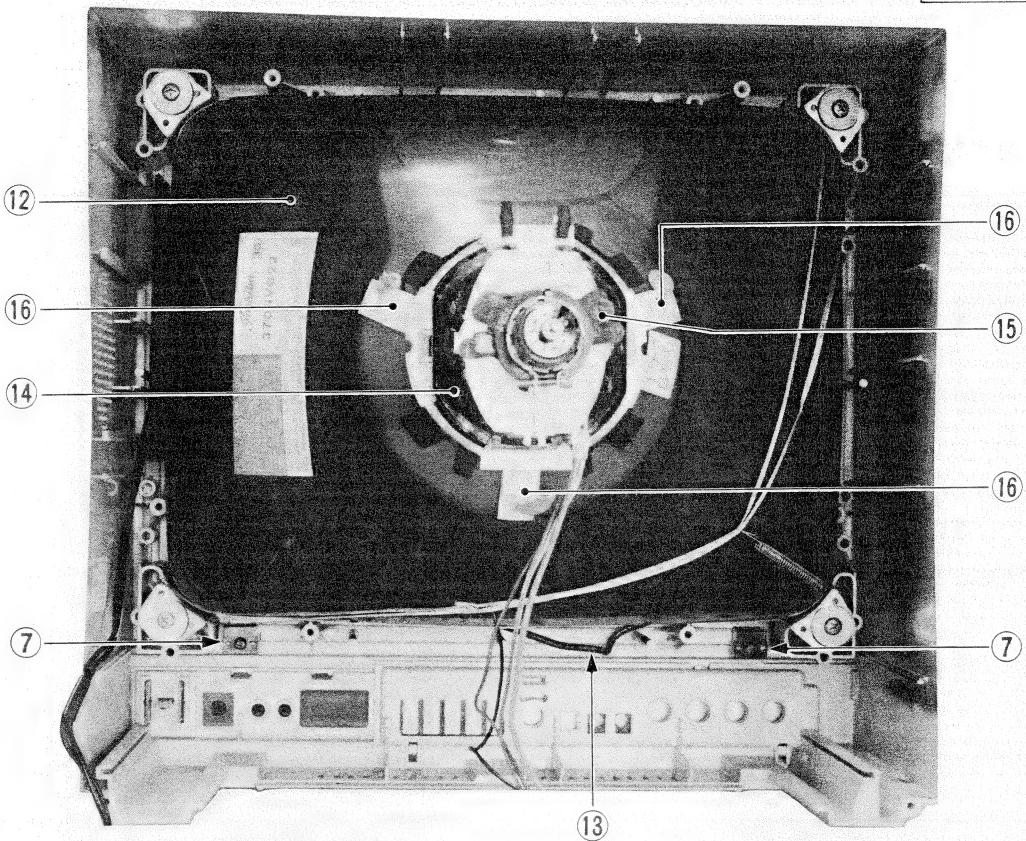
CHASSIS AND CABINET PARTS LIST

VIEW NO.	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
1			CM10200-00D	Front Cabinet Ass'y	C-1455US
"			CM10200-00E	"	C-1455CA
2			CM30845-004	Door (C-1455US)	within Front Cabinet Ass'y
"			CM30845-005	" (C-1455CA)	"
3			CM41673-002	Operation Sheet	"
4			CM41674-002	Push Knob	(Main Power) "
5			CM30861-001	Spring	(Push Knob) "
6			CM41675-00B	Remocon Window	"
7			CM41838-001	Glass Holder	"
8			C40590	JVC Mark	"
9			CM41891-001	Control Plate	"
10			A38080-23	Stick Sheet	(x2) "
11			EAS-8P16ST	Speaker	
12	V01	△	370NVB22-AB	Picture Tube	of 370KNB22-AB
13	L01	△	C30172-G	Degausing Coil	
14	DY01	△	CE20027-00A	Def. Yoke Ass'y	or CJ26193-00A
15			CE40305-00B	PC Magnet	
16			CJ30033-00B	Wedge Ass'y	
17			CM41678-A01	Push Knob	Preset
18			CM41677-001	Knob Cap	Main Power
19		△	CM30926-00A	ANT. Terminal Ass'y	
20			CM10193-004	Rear Cover	
21			CM20002-022	Rating Label	C-1455US
"			CM20003-011	"	C-1455CA
22			GBSB4016N	W Tap. Screw	(x5)
23			CM41887-001	Push Knob	(x2)
24			CM20104-A06	Glass	
25			CM41679-001	Glass Holder	(x2)
26		△	CEX40319-244	Power Cord	
27			A37963-BA	Rod ANT. Ass'y	
28			C40910-A	UHF Loop Antenna	
29			CE40128-001	75Ω Conv. Adp.	
30	R1701		A76104-20K	VR Ass'y	Memory, Band SW, Tuning
31	R1230, R1240		CEX40119-B14M	VR	(x4) Color, Picture Tint, Bright
32	UV1001	△	AK7011EZ-A02	UHF/VHF E Tuner	C-1455US
"	"	△	AK7012EZ-A02	"	C-1455CA
33	T1522	△	CE40503-00A	H V Module	C-1455US
34	Q1522	△	2SD1426	Si. Transistor	H. Out
35	S1901	△	CEX40289-001	Power Switch	Main Power
36	F1901	△	QMF66U1-4ROS	Fuse	4A
37	F1902	△	QMF53U1-1ROS	"	1A
33	T1522	△	CE40503-00B	H V Module	C-1455CA

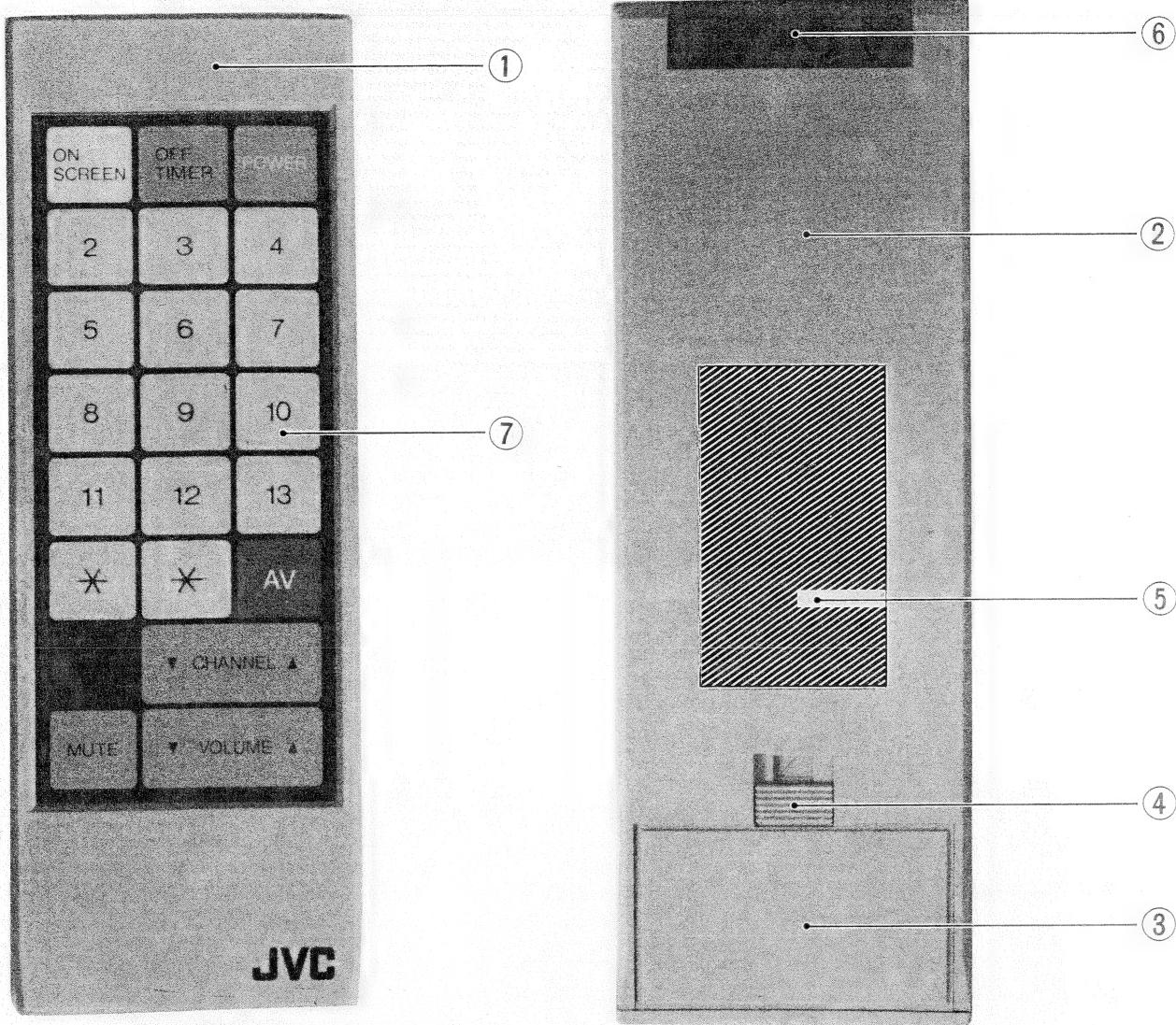
[EXPLODED VIEW]







REMOTE CONTROL TRANSMITTER (CT-70US/CT-70CA)



REMOTE CONTROL TRANSMITTER (CT-70US/CT-70CA)

VIEW NO.	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
1			FA11A046	Top Case	
2			FA11A032	Bottom Case	
3			FA11A033	Battery Lid.	
4			FA03A003	Slide Knob	
5			183FA00128	Rating Label	C-1455US
"			183FA00129	"	C-1455CA
6			FA58A004	Filter	
7	IC01		FA06A006	Operation Sheet	
	Q01		M50142P	IC	
	Q02		2SC1213(D)	Transistor	
	D01		2SB562(C)	"	
	CF1		LN-66S	LED	
			CSB455EB	Ceramic Filter	
			UM-4NE	Battery	Size "AAA" (R03)

JVC C-1455US/CA SCHEMATIC DIAGRAM

SAFETY PRECAUTIONS

- The FR () is a fusible resistor, thus possessing the function of a fuse. When replacing their fusible resistor or the black-melted parts () shown in the circuit diagrams, be sure to use correctly designated parts for safety.
- Also, to ensure safety and maintenance of designated performance, also use the specified items on other components.

INDICATED VOLTAGE AND WAVEFORMS

- Voltage/waveforms on respective components are indicated by actually measuring them with a tester or an oscilloscope through receiving service color bar signals of sufficient sensitivity. The volume positions are set as a result of measurement under the condition of factory shipment. Since the signal systems present slightly fluctuating values depending on adjustment and other conditions, the indicated values should be used as reference values. All indicated values represent DC voltage.

Tester used for measuring
Internal resistance DC 20 kΩ/V
Oscilloscope sweeping time
H → 20 μS/div
V → 5 mS/div
Others → Sweeping time is indicated

SYMBOL NO. DISPLAY METHOD OF COMPONENTS

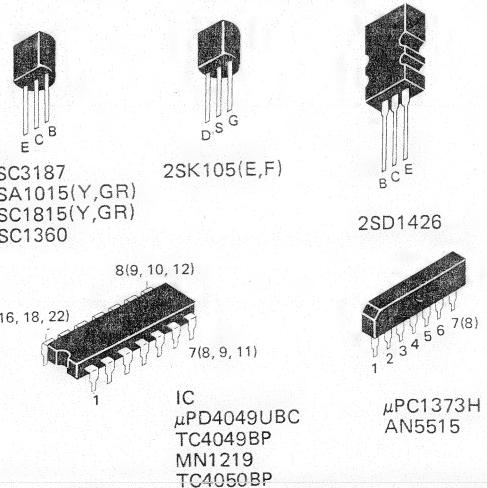
- Inside PC board (example)
SX-1021A: R1901 → R901

CIRCUIT DIAGRAM DISPLAY SYMBOLS

1. Resister

- Resistance value
When no unit is provided: [Ω]
K: [kΩ]
M: [MΩ]
- Rated permissible power capacity
When no display is made: 1/6 [W]
Others: Display are provided

BASINGS OF TRANSISTORS & ICs



○ Resistor type

- No type display: Carbon resistor
- OMR : Oxidized metal film resistor
- UNF : Cement resistor
- CMF : Metal film resistor
- MFR : Fusible resistor

* Composition resistor 1/2 [W] is displayed as "1/2S" or "comp."

2. Capacitor

○ Capacity

Over 1 [PF] Below 1 [μF]

○ Withstand voltage

- No display : DC 50 [V]
- Others : DC withstand voltage [V]
- AC display : AC withstand voltage [V]

○ Display of electrolytic capacitor is as follows.

(Example)
47/50 → Capacity [μF]/withstand voltage [V]

○ Capacitor type

- No type display: Ceramic capacitor
- MY : Mylar capacitor
- MM : Metal Mylar capacitor
- PP : Polypropylene capacitor
- MPP : Metallic polypropylene
- NP : Nonpolar electrolytic capacitor
- BP : Bipolar electrolytic capacitor
- TANTAL : Tantalum capacitor

3. Coil

When no unit is displayed: [μH]

4. Power supply

— : B1 Voltage (130V)

— : B2 Voltage (12V) — : 12V

* Respective voltage values are indicated.

5. Test point

○ : Test point of mini-GP pin

○ : Only test point display

6. Connecting method

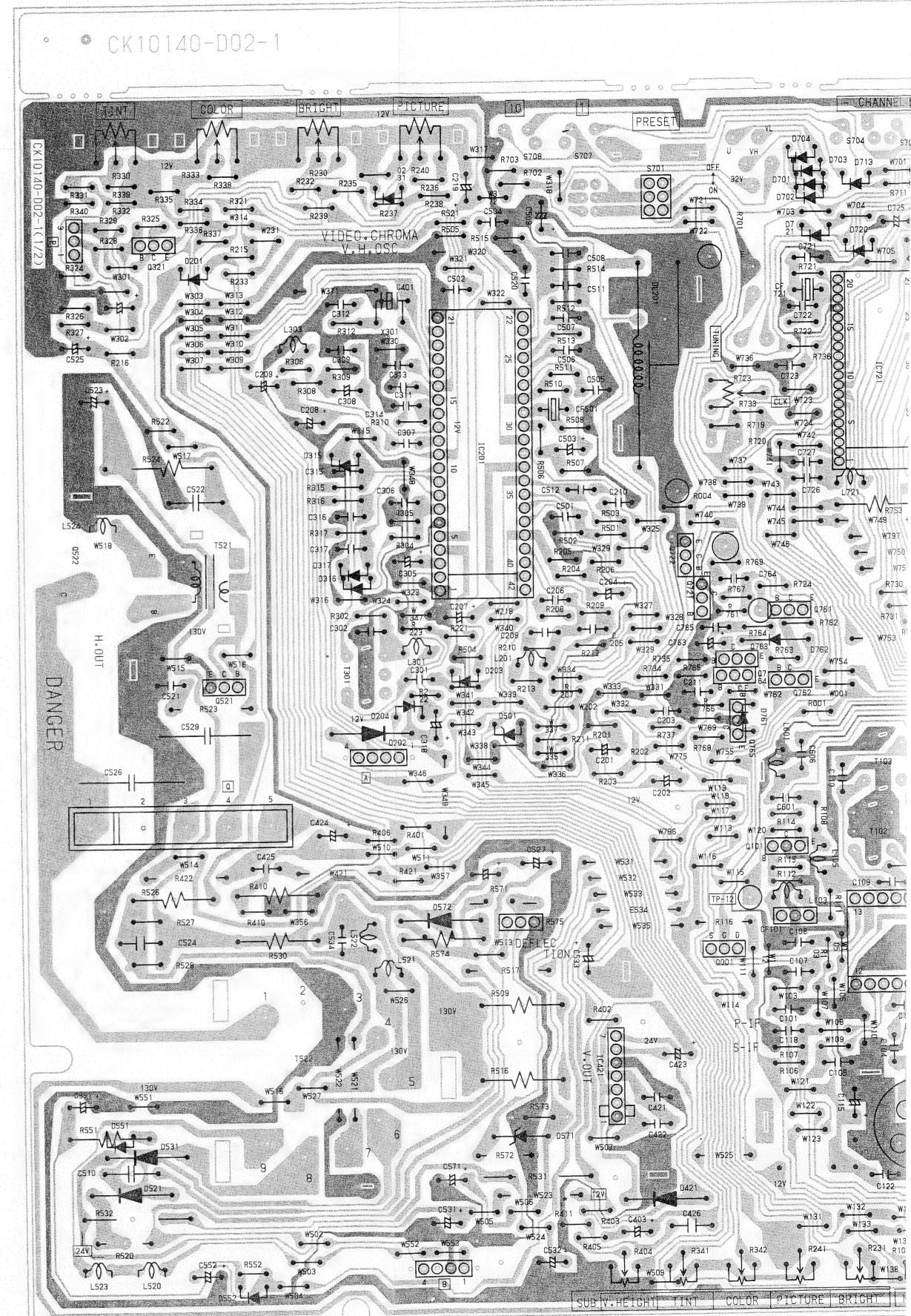
□ : Connector

○○ : Wrapping or soldering

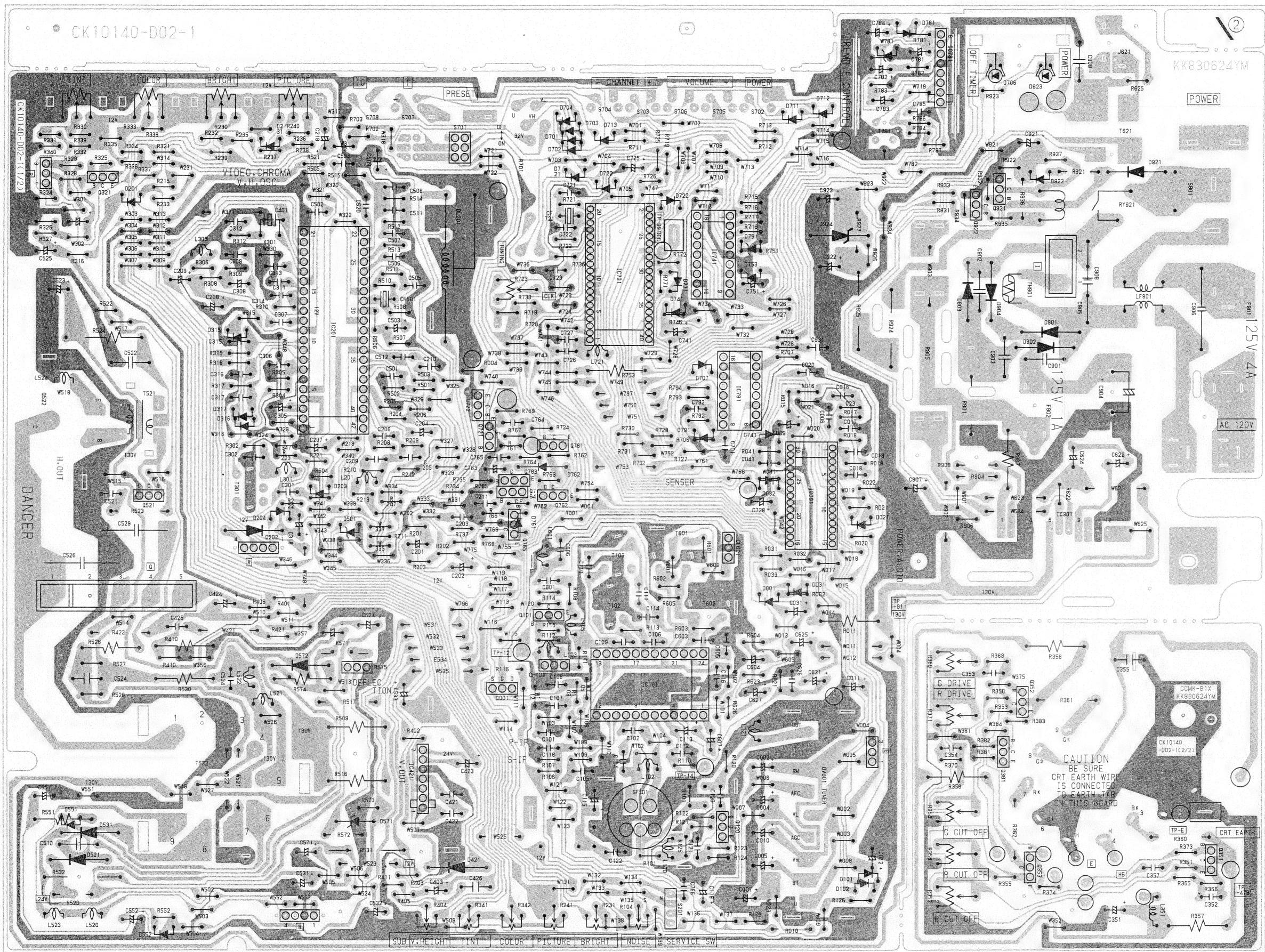
★ : Receptacle

* Since the reference circuits are provided, the circuits configuration and/or constants are subject to change without prior notice to achieve further improvements.

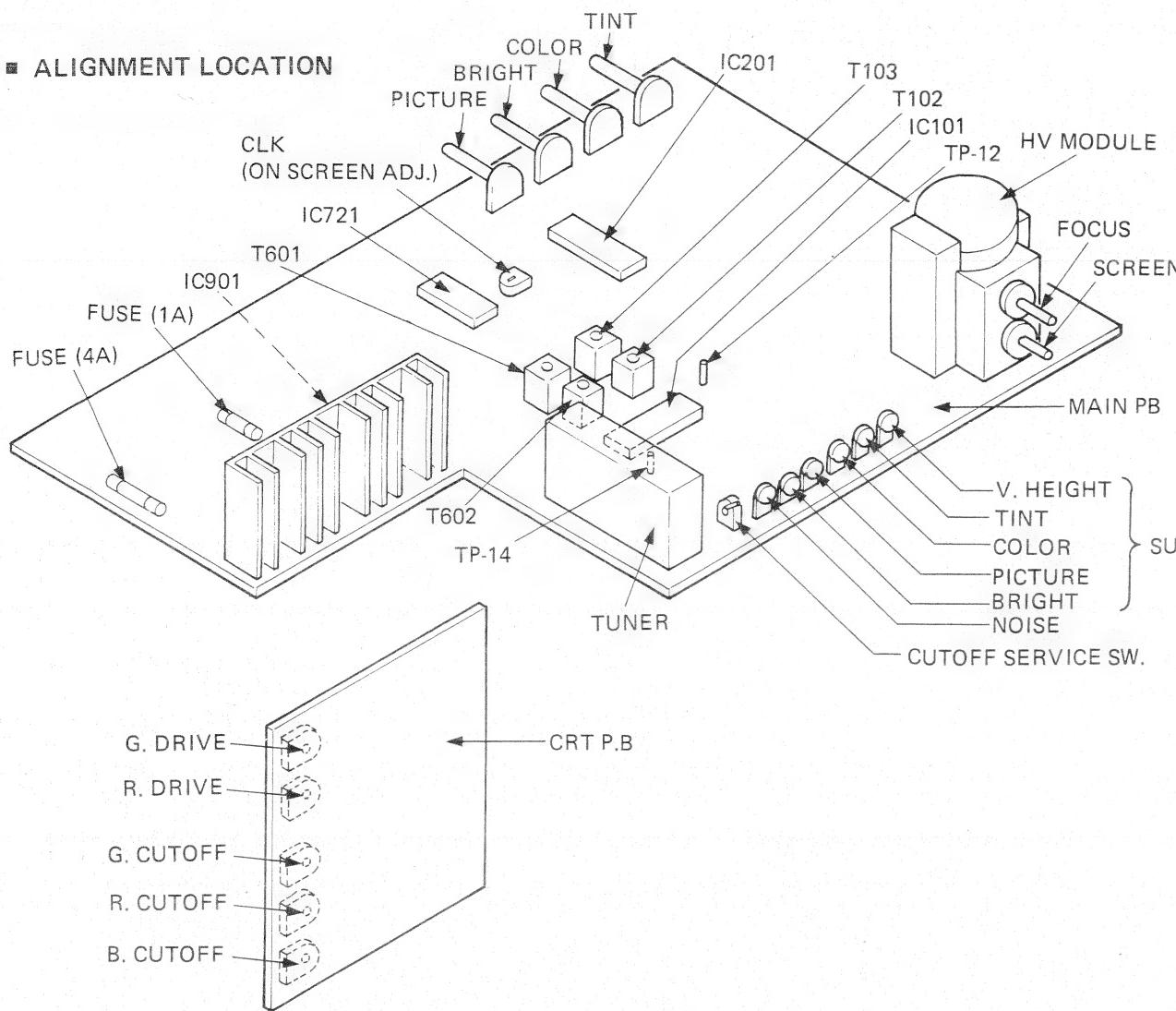
MAIN PB BACK PATTERN



MAIN PB BACK PATTERN

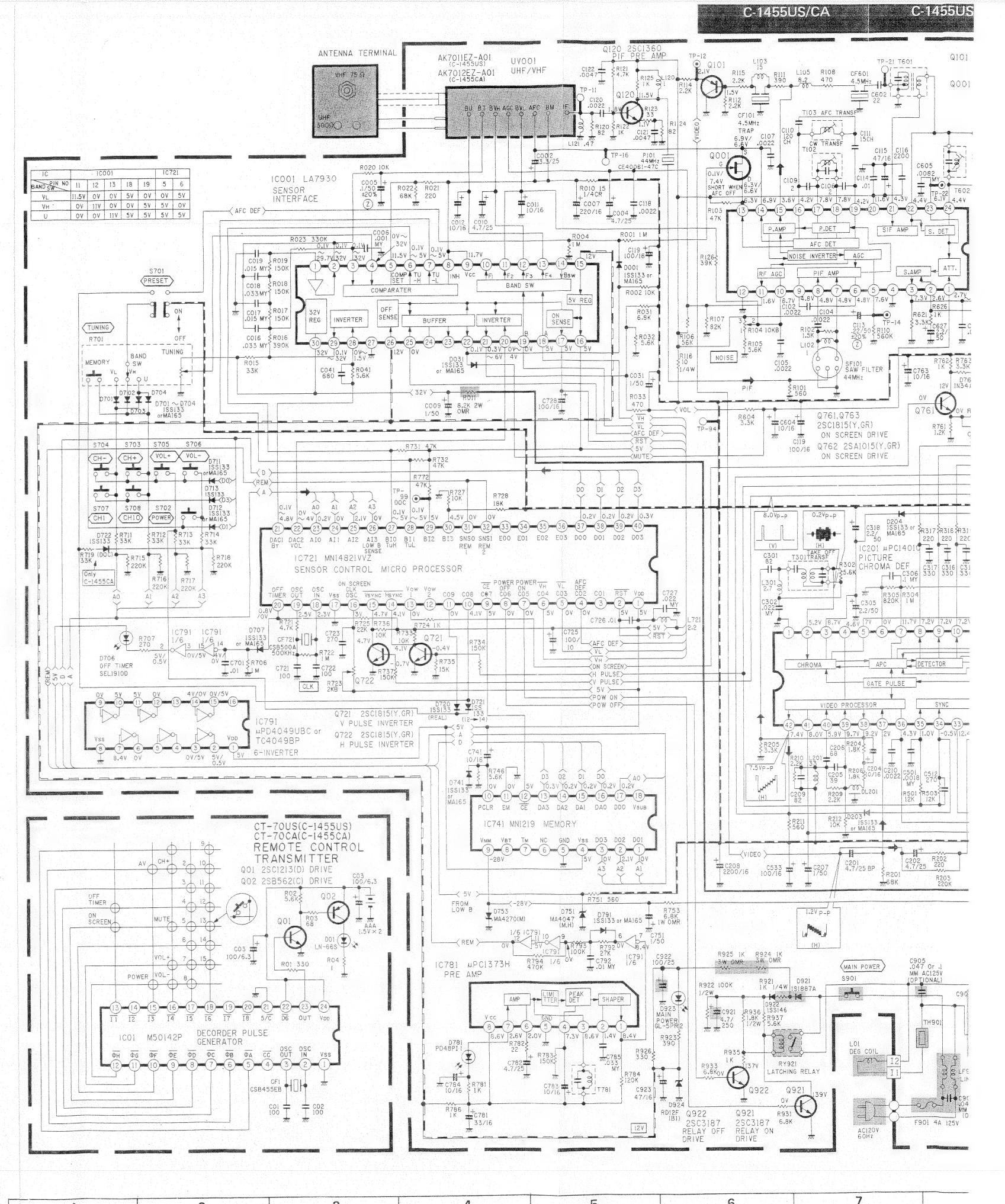


■ ALIGNMENT LOCATION

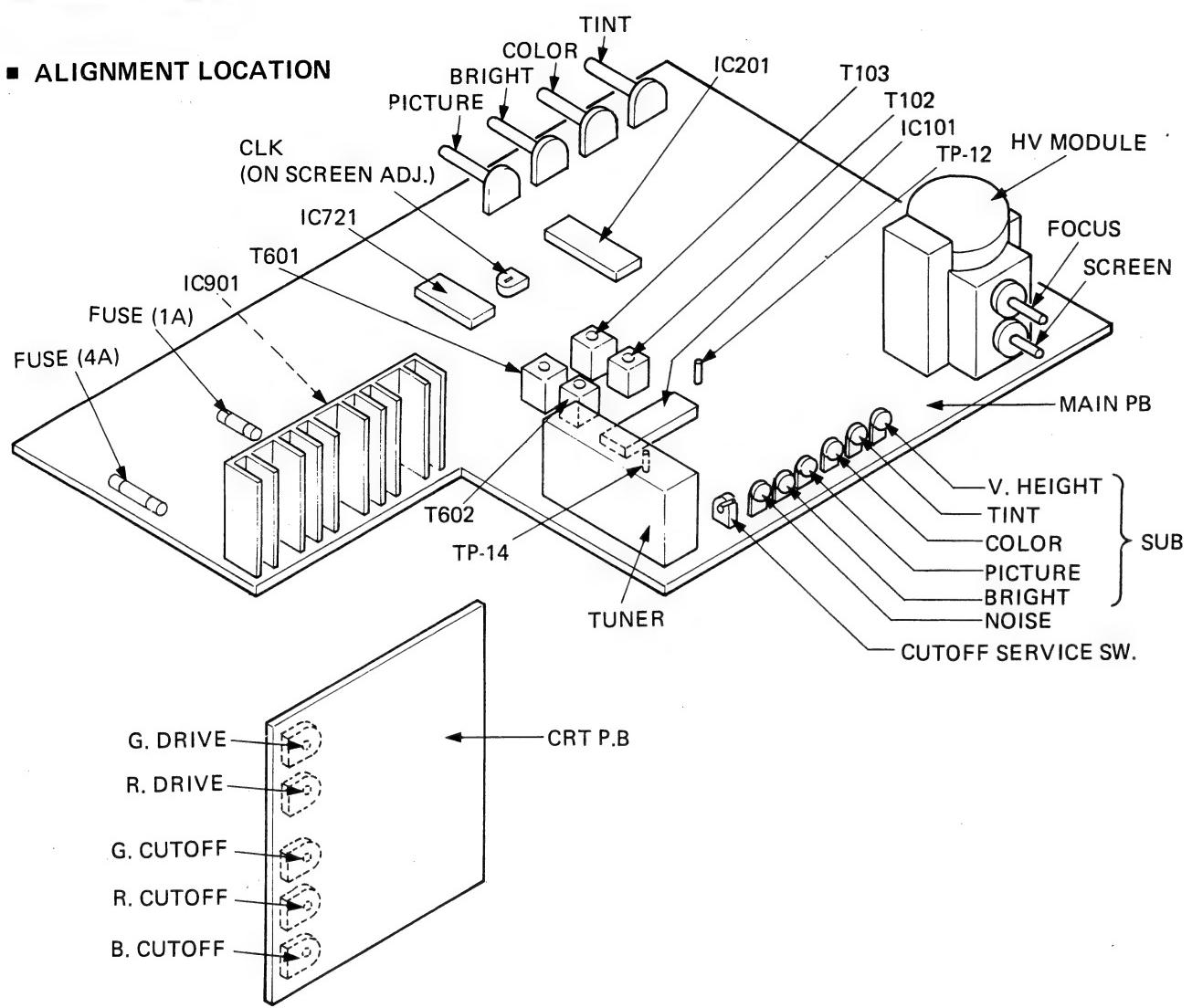


■ PARTS LIST (SHADED PARTS IN THE SCHEMATIC DIAGRAM)

Symbol No.	Part No.	Part Name	Symbol No.	Part No.	Part Name
SX-1121A (C-1455US)/SX-1122A (C-1455CA) MAIN PB ASS'Y					
R1011 1520	QRG029J-822	OM R	T1522	CE40503-00A	HV Module
1524	QRD149J-1ROS	C R	1621	CE40500-00A	SOT
1574	QRG029J-123	OM R	D1521	RH-1S	Si. Diode
1574	QRX019J-4R7S	MF R	1571	HZ7B2LV1	Zener Diode
1575	CJ39520-00M	R Block	1901	1S1887A	Si. Diode
~ 4			1921	"	"
1901	QRF076K-2R0	UNF R	Q1522	2SD1426	Si. Transistor
1904	QRD149J-123S	C R	IC1421	AN5515	IC
1905	QRF204J-221	UNF R	1901	STK563A	"
1907	QRX029J-2R2A	MF R	1924	CE40228-00B	CRT Socket
1921	QRD149J-102S	C R	S1901	CEX40289-001	Power SW
1924	QRG039J-102A	OM R	LF1901	A39475-J	Line Filter
C1523	" -102A	E Cap.	TH1901	CEX40137-001	TH Posistor
1526	QET52CR-336	MPP Cap.	RY1921	CE40508-00B	Relay
1527	QFZ0081-5801S	E Cap.	F1901	QMF66U1-4ROS	Fuse
C1523	QET52CR-475		1902	QMF53U1-1ROS	"
1531	QET51VR-227		R1908	QRD140J-221S	C R
1532	QET51ER-477		OUTSIDE OF THE PB ASS'YS		
1622	QET52AR-106		V01	370NVB22-AB	Picture Tube
1624	" -106		L01	C30172-G	Degaussing Coil
1901	QCZ9014-472A	C Cap.	DY01	CE20027-00A	Def. Yoke Ass'y
~ 3				CM30926-00A	ANT. Terminal Ass'y
1904	QE72DM-567M	E Cap.		CEX40319-244	Power Cord
1905,6	QFZ9020-473M	MF Cap.	UV1001	AK7011EZ-A02	UHF/VHF E Tuner (C-1455US)
1921	QET52ER-475	E Cap.			" (C-1455CA)
1922	QET61ER-107Z	"			
L1520	CE40037-230	Choke Coil			
1523	" -230	"			
CP1501	1CP-N10	C. Protector (C-1455CA)			

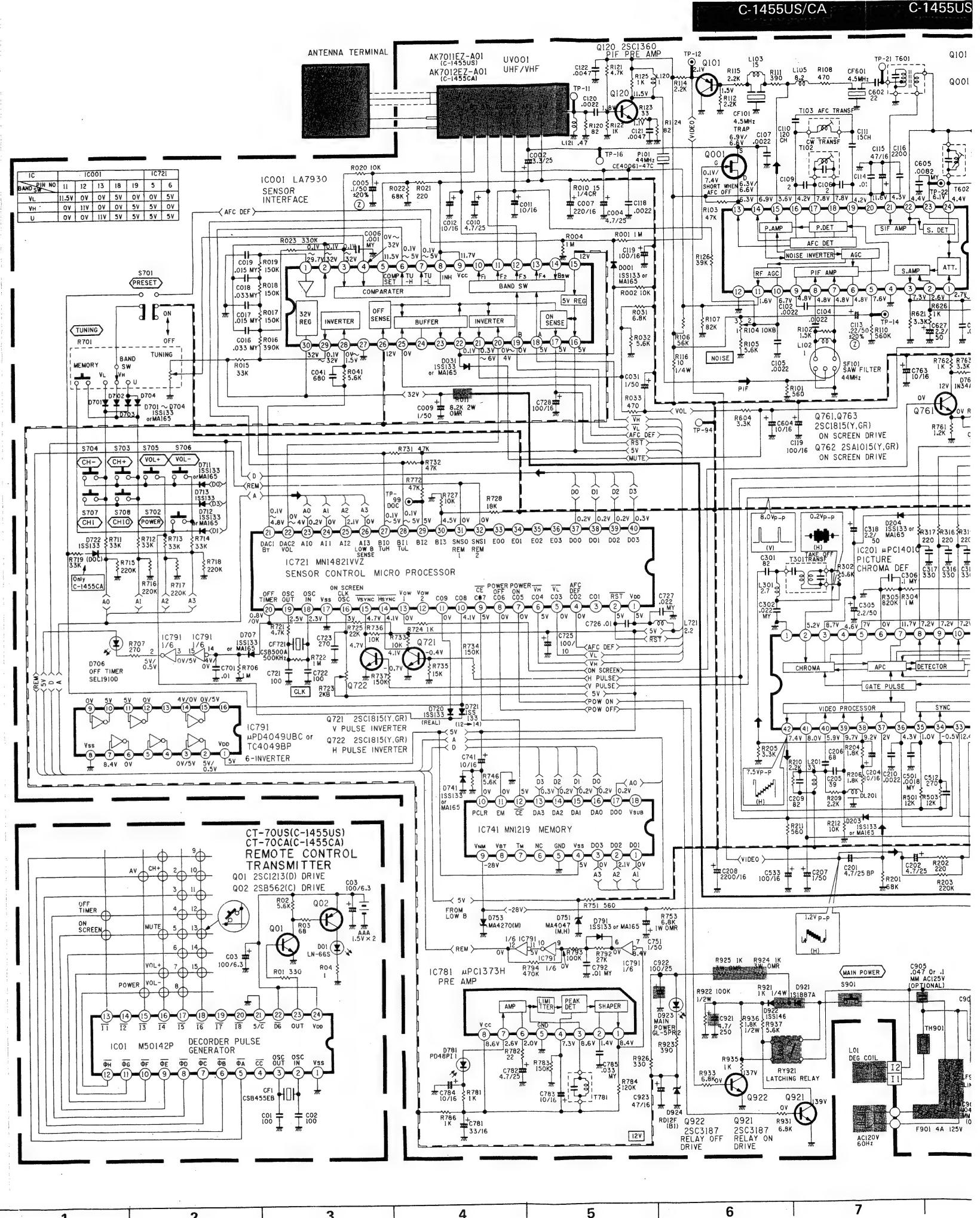


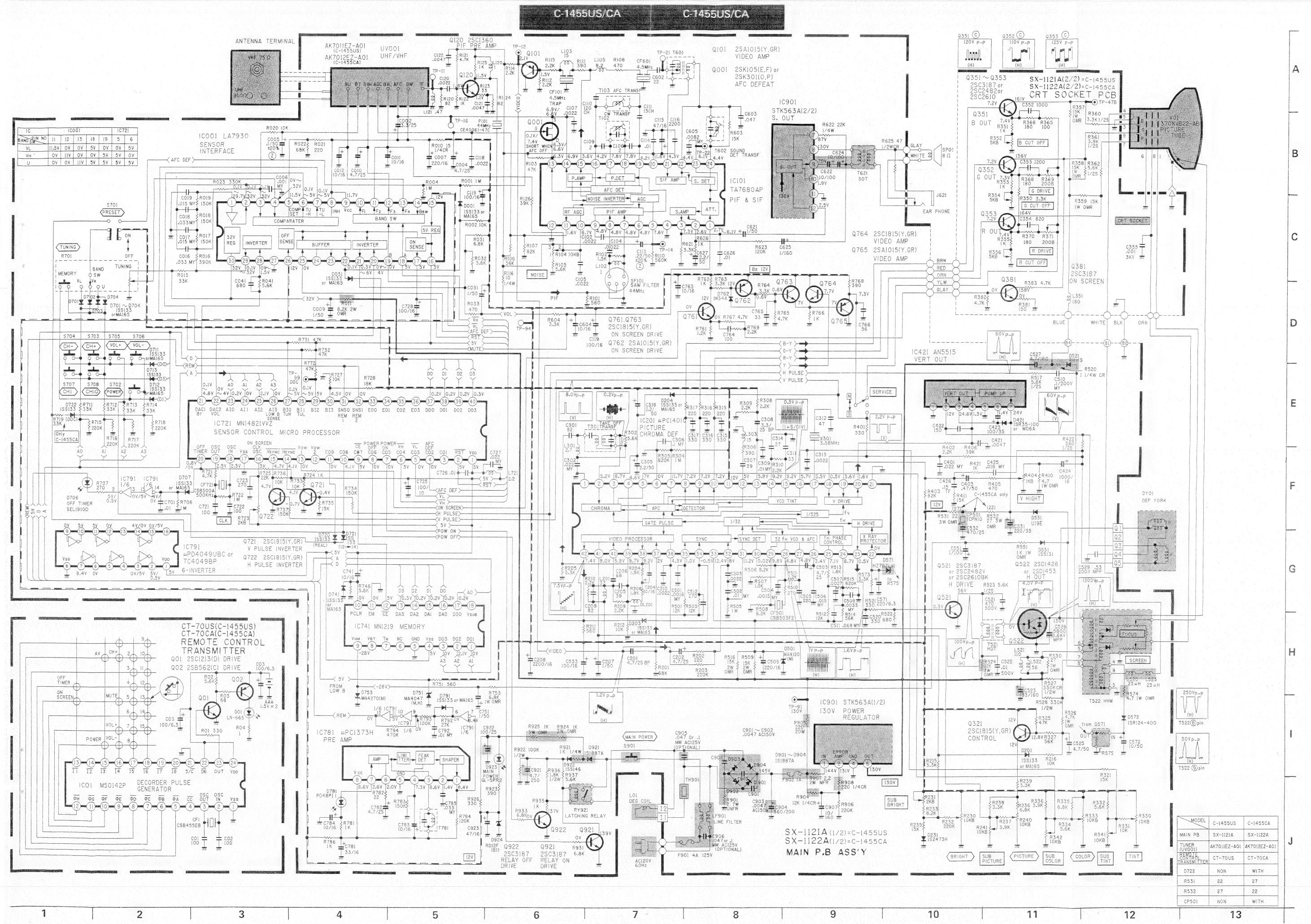
■ ALIGNMENT LOCATION

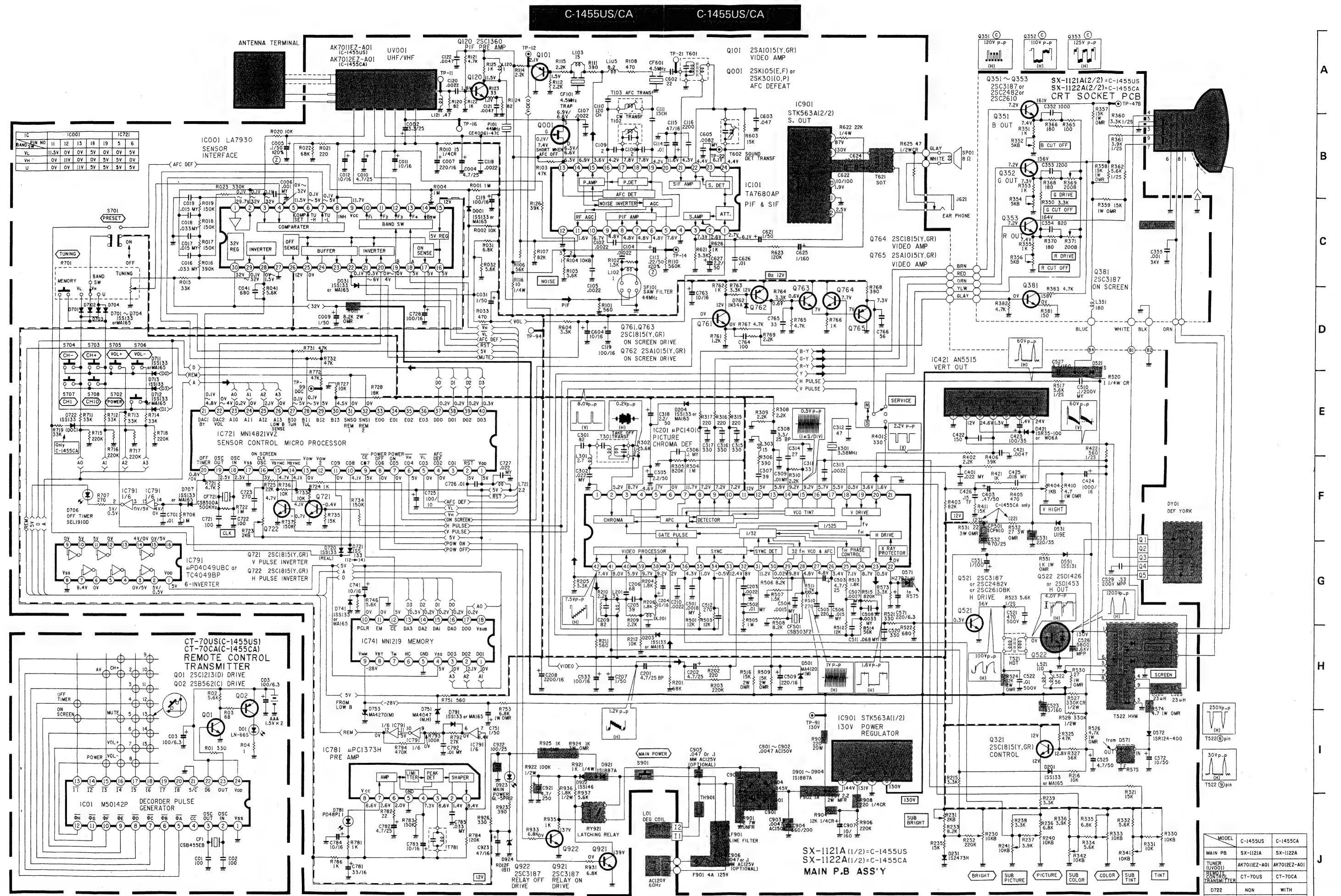


■ PARTS LIST (SHADED PARTS IN THE SCHEMATIC DIAGRAM)

Symbol No.	Part No.	Part Name	Symbol No.	Part No.	Part Name
SX-1121A (C-1455US)/SX-1122A (C-1455CA) MAIN PB ASS'Y					
R1011	ORG029J-822	OM R	T1522	CE40503-00A	HV Module
1520	QRD149J-1R0S	C R	1621	CE40500-00A	SOT
1524	ORG029J-123	OM R	D1521	RH-1S	Si. Diode
1574	QRX019J-4R7S	MF R	1571	HZ7B2LV1	Zener Diode
1575	CJ39520-00M	R Block	1901	1S1887A	Si. Diode
1901	QRF076K-2R0	UNF R	~ 4	"	"
1904	QRD149J-123S	C R	1921	2SD1426	Si. Transistor
1905	QRF204J-221	UNF R	IC 1421	AN5515	IC "
1907	QRX029J-2R2A	MF R	1901	STK563A	"
1921	QRD149J-102S	C R	1924	CE40228-00B	CRT Socket
1925	QRG039J-102A	OM R	1925	CEX40289-001	Power SW
"	"	"	S 1901	A39475-J	Line Filter
C1523	QET52CR-336	E Cap.	LF1901	CEX40137-001	TH Posistor
1526	QFZ0081-5801S	MPP Cap.	TH1901	CE40508-00B	Relay
1527	QET52CR-475	E Cap.	RY1921	F1901	Fuse
1531	QET51VR-227	"	1902	QMF66U1-4R0S	"
1532	QET51ER-477	"	R1908	QMF53U1-1R0S	C R
1622	QET52AR-106	"	OUTSIDE OF THE PB ASS'Ys	QRD140J-221S	
1624	"	"	V01	370NVB22-AB	Picture Tube
1901	QCZ9014-472A	C Cap.	L01	C30172-G	Degaussing Coil
~ 3			DY01	CE20027-00A	Def. Yoke Ass'y
1904	QEUV72DM-567M	E Cap.		CM30926-00A	ANT. Terminal Ass'y
1905,6	QFZ9020-473M	MF Cap.		CEX40319-244	Power Cord
1921	QET52ER-475	E Cap.	UV1001	AK7011EZ-A02	UHF/VHF E Tuner (C-1455US) (C-1455CA)
1922	QET61ER-107Z	"		"	"
L1520	CE40037-230	Choke Coil			
1523	" -230	"			
CP1501	1CP-N10	C. Protector (C-1455CA)			







SAFETY PRECAUTION

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of receiver should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in television sets have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual may create shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**
The chassis and any sub-chassis contained in some product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some product when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and NEUTRAL side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (primary: \perp) side GND and the NEUTRAL (secondary: \parallel) side GND.
Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time.
If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the B_1 setting should be checked or adjusted (See ADJUSTMENT OF B_1 VOLTAGE).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a $10k\Omega$ 2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
10. **Isolation Check**
(Safety for Electrical Shock Hazard)
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, channel selector knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) **Dielectric Strength Test**

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1,100V AC (r.m.s.) for a period of one second. Withstand a voltage of 1,100V AC (r.m.s.) to an appliance rated up to 120V, and 3,000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.

This method of test requires a test equipment not generally found in the service trade.

(2) **Leakage Current Check**

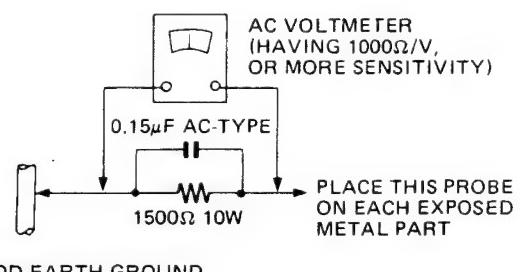
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

• **Alternate Check Method**

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a $1,500\Omega$ 10W resistor paralleled by a $0.15\mu F$ AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.).

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).



GOOD EARTH GROUND

11. **High voltage hold down circuit check.**

After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.

See item "How to check the high voltage hold down circuit".

PURITY, CONVERGENCE AND WHITE BALANCE

* The locations of SERVICE SWITCH, SCREEN VR, CUT-OFF VR and DRIVE VR are described in the ALIGNMENT LOCATION of the schematic diagram.

PICTURE TUBE

The picture tube is a precision in-line gun type. For this picture tube, dynamic convergence is carried out by a precision deflection yoke which eliminated the use of convergence yoke and convergence circuit. The adjustment of picture tube is therefore made easier as only the adjustment of static convergence by using a magnetic is enough. The deflection yoke and purity/convergancy magnets assembly has been set at the factory and requires no field adjustments.

However, should the assembly be accidentally jarred or tampered with, some or all adjustments may be necessary.

COLOR PURITY & VERTICAL CENTER

Loosen yoke retaining screw (Fig. B-1). With a sharp knife cut between the picture tube and the bond. Remove wedges completely and clean off dried adhesive from the picture tube. PAINT is used to lock the tabs of the purity/convergence magnet assembly in place (Fig. B-1). The paint must be removed with the end of a screwdriver before any adjustments are attempted.

(As to models equipped with a magnet locking ring, before hand loosen it.)

1. Select no signal UHF channel.
2. Let the purity tabs come in line horizontally as is shown in Fig. B-2. A long tab should be in the same direction as the other short tab.
3. Move the yoke slowly backward.
4. Turn the GREEN CUT-OFF VR to maximum and the RED and BLUE CUT-OFF VR to minimum. Then adjust the SCREEN VR so that the green band can be seen best. (Fig. B-3.)
5. Rotate the two tabs in the opposite directions and with them kept at an angle, together in either direction so that the green band is centered on the picture tube.
6. Check the vertical center position by displaying a horizontal line. Unless correct, bring it to the center by rotating the two tabs, kept at an angle, together in either direction. (Fig. B-4)
7. Repeat steps 5 and 6 alternately until the green band and the vertical center come to the center.
8. Move the yoke slowly towards the bell of the tube so that the whole surface of the picture tube is filled with a green pure raster.
9. Turning RED or BLUE CUT-OFF VR to maximum and GREEN CUT-OFF VR to minimum, make sure of a red or blue pure raster.
10. Secure yoke retaining screw (do not install wedges at this time).

(As to models equipped with a magnet locking ring, secure it and keep six magnets from moving even if it is touched slightly.)

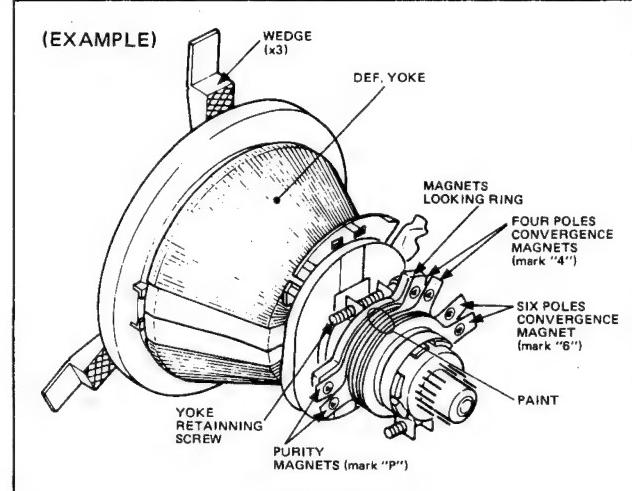


Fig. B-1

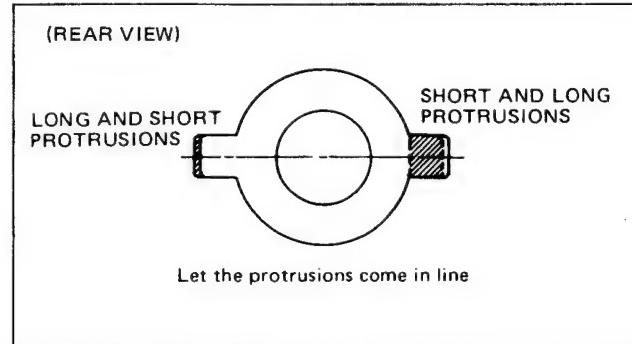


Fig. B-2

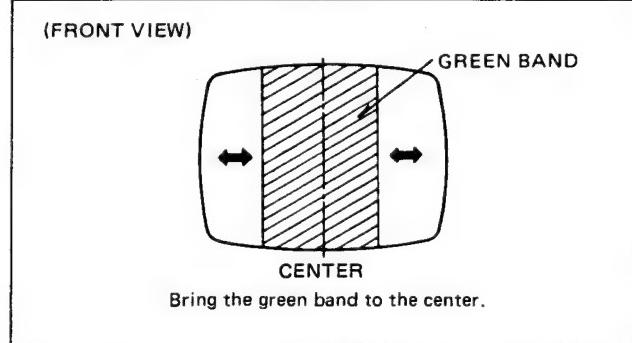
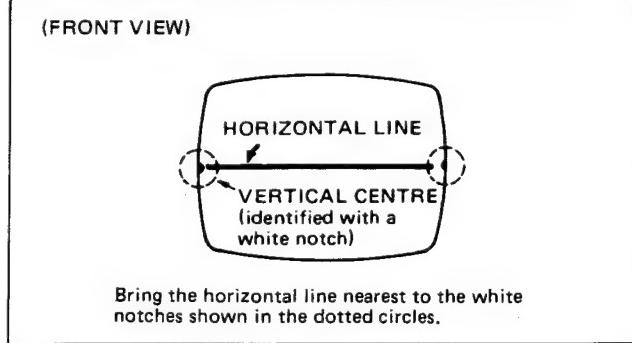


Fig. B-3



STATIC CONVERGENCE & DYNAMIC CONVERGENCE

1. Connect a crosshatch generator to the antenna terminals and adjust BRIGHTNESS and CONTRAST control for a distinct pattern.
2. Adjust the convergence around the edges of the picture tube by tilting the yoke, up-down and left-right, and temporarily install one wedge at the top of the yoke. (Fig. B-7, 8, 9)
3. Rotate the front pair of tabs (four pole convergence magnet) as a unit to minimize the separation of the red and blue lines around the center of the screen. To adjust the convergence of red and blue, vary the angle between the tabs. (Fig. B-5)
4. Rotate the rear pair of tabs (six pole convergence magnets) as a unit to minimize the separation of the magenta (R/B) and green lines. (Fig. B-6)
5. Adjust the spacing of the rear tabs to converge the magenta and green lines.
6. Apply paint to fix six magnets
(As to models equipped with a magnet locking ring, tighten it.)
7. Remove the wedge installed temporarily on the yoke.
8. Tilting the angle of the yoke up, down and sideways, and adjust the yoke so as to obtain the circumference convergence. (Fig. B-8, 9)
9. Insert three wedges to the position as shown in Fig. B-10 to obtain the best circumference convergence.
10. Wedge has a backing of double sided adhesive tape. Therefore, tear off one side of adhesive tape, and fix the wedges.
11. White balance adjustment (Black & White tracking) can now be performed.

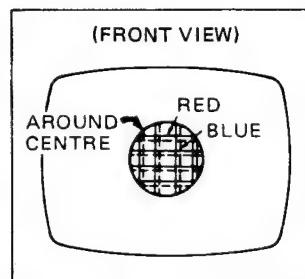


Fig. B-5

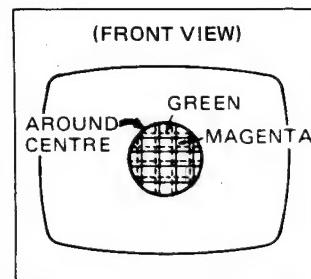


Fig. B-6

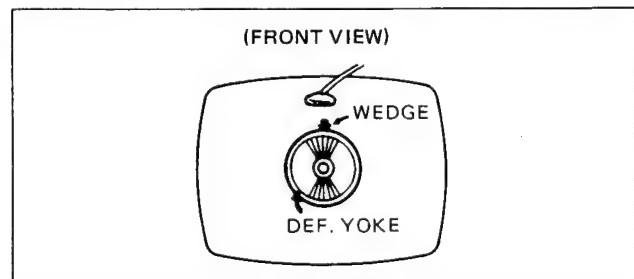


Fig. B-7

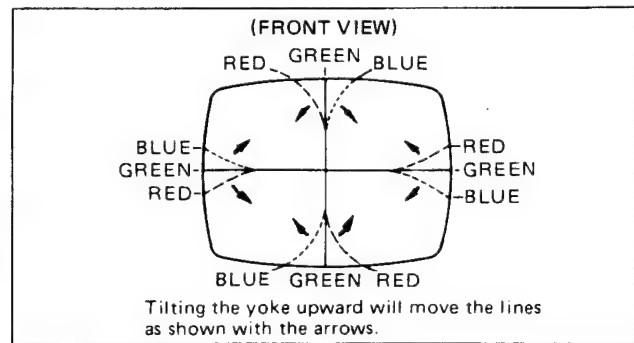


Fig. B-8

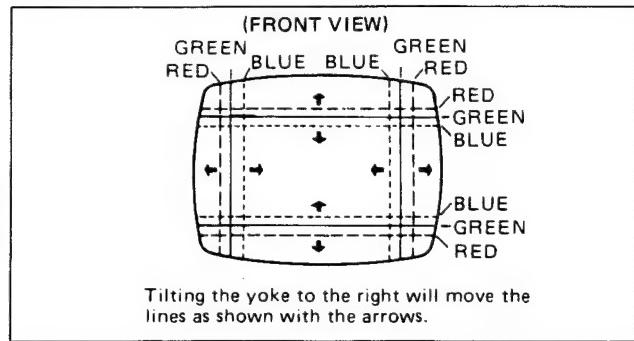


Fig. B-9

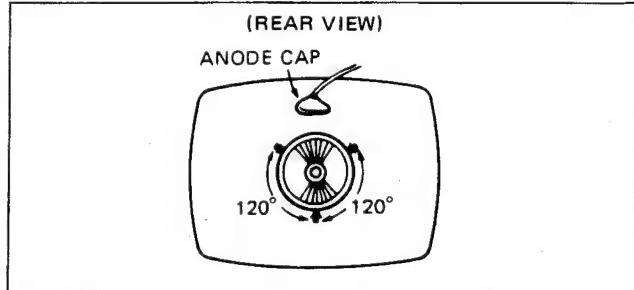


Fig. B-10

WHITE BALANCE ADJUSTMENT (Black and White Tracking)

1. Display a monochrome pattern.
2. Set the RED and GREEN DRIVE VR for their mechanical center.
3. Turn the RED, GREEN and BLUE CUT-OFF VRs and the SCREEN VR fully counterclockwise.
4. Display a horizontal line. (refer to "HORIZONTAL LINE")
5. Turn SCREEN VR slowly clockwise until a very faint horizontal line appears.
6. Turn the CUT-OFF VRs of the color which has appeared first, clockwise by about 10° and then adjust the SCREEN VR again so that the color may shine faintly.
7. Turn the other color CUT-OFF VRs slowly clockwise until a reasonable white line appears.
8. Return the monochrome pattern. (refer to "HORIZONTAL LINE")
9. Adjust the RED and GREEN DRIVE VRs for best white highlights.

SERVICE ADJUSTMENTS

* ADJUSTMENTS EXCEPT THE FOLLOWING DESCRIPTION ARE MENTIONED IN THE SERVICE MANUAL TEXT.

* SOME ITEM OF ADJUSTMENT METHOD IS NOT APPLICABLE TO SOME MODEL.

IN SUCH A CASE OMIT THE ITEM.

* Adjustments except the following description are mentioned in the service manual text.

* Use the undermentioned adjustment methods after repair or for readjustment of misadjustment.

* The locations of the under mentioned adjustment parts are described in the "Alignment Location" of the Schematic Diagram.

* Test point pins are not indicated in the printed circuit board, but in the Schematic Diagram under certain circumstances. In this case, look for test points, which are indicated in the Schematic Diagram, on the printed circuit board; and use it for test points even if there are not test point pins.

B₁ VOLTAGE

Confirm that B₁ voltage exists between TP-91 and GND.

NOTE

1. Some model's power circuit is partly different in the GND.

The difference of the GND is shown by the LIVE (primary:) side GND and NEUTRAL (secondary:) side GND.

In this case, use a suitable ground by checking whether LIVE side GND or NEUTRAL side GND in each schematic diagram.

2. Use isolation transformer when hot chassis.

The chassis and any sub-chassis contained in some product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some product when the HOT chassis is exposed.

3. The tester used should be periodically calibrated at 20kΩ/V.

SUB CONTRAST AND SUB BRIGHT

1. Set the CONTRAST, BRIGHT, PICTURE, and the COLOR knobs to the central position respectively (where they click).

If STANDARD BUTTON provided, press it.

(If EE SWITCH provided, Select the EE SWITCH OFF.)

2. Then align both the SUB CONTRAST VR and SUB BRIGHT VR until an ideal picture is obtained.

BLACK LEVEL AND SUB BRIGHT

• BLACK LEVEL and SUB BRIGHT VR are correlated. Do not adjust them carelessly.

1. Set the CONTRAST, BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).

If STANDARD BUTTON provided, press it.

(If EE SWITCH provided, select the EE SWITCH OFF.)

*2. Turn the BLACK LEVEL VR fully clockwise.

Receive a high-contrast picture and adjust brightness with the SUB BRIGHT VR in the usual way.

(Turn the SUB BRIGHT VR while observing vertical flyback line; stop turning it just before vertical flyback line turns black.)

3. Turn the BLACK LEVEL VR counterclockwise, and adjust it so that black objects appear pure black and vivid.

4. Confirm the adjusted status on every channel.

SUB TINT AND SUB COLOR

1. Set the CONTRAST, BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).

If STANDARD BUTTON provided, press it.

(If EE SWITCH provided, select the EE SWITCH OFF.)

2. Adjust the SUB TINT VR and SUB color VR to obtain human skin natural color.

SUB PICTURE

1. Set the CONT., BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).

* If STANDARD BUTTON provided, press it. (If EE switch provided, select the EE SW, OFF).

2. Adjust the SUB PICTURE VR until an ideal picture is obtained.

3.58 MHz TRAP

1. Connect a color bar generator to the antenna terminal.

2. Connect oscilloscope probe to DELAY LINE output side.

3. Adjust the 3.58 MHz TRAP (T201) so that the 3.58 MHz signal is minimized. (Fig. C-1)

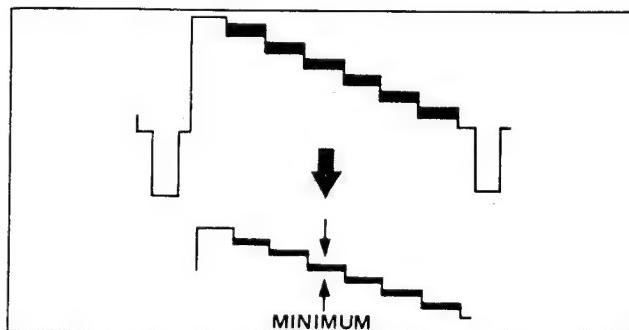


Fig. C-1

- * Some item of adjustment method is NOT applicable to some model. In such a case omit the item.
- * Adjustments except the following description are mentioned in the service manual test.
- * Use isolation transformer when HOT chassis.

COMB FILTER

1. Connect a color bar generator to the antenna terminal.
2. Connect an oscilloscope to COMB FILTER "Y" output position (TP-42). Magnify the color signal portions of the color bar waveform so that the 3.58 MHz elements become easy to observe.
3. Adjust PHASE Transf. (T201 and T202), and minimize the 3.58 MHz elements.
4. Regulate the COMB FILTER adjustment VR to further minimize the 3.58 MHz elements. (Fig. C-1)
5. Repeat steps 3 and 4 to fully minimize the 3.58 MHz elements. (Fig. C-1)

VERTICAL HEIGHT AND LINEARITY

1. Set color bar generator to crosshatch or a pattern with which symmetry can be checked.
2. Reduce the vertical size with the VERTICAL HEIGHT VR.
3. Adjust the vertical symmetry with the VERTICAL LINEARITY VR.
4. Readjust the VERTICAL HEIGHT so that the picture extends to normal size.

VERTICAL HEIGHT

1. Set the color bar generator to crosshatch or pattern with which symmetry can be checked.
2. Adjust the vertical symmetry with the VERTICAL HEIGHT VR.

NOISE (RF A.G.C. Delay)

This control is set at the factory and rarely requires any adjustment. If a snowy picture appears on a medium to weak station adjust the noise control.

1. Turn control fully clockwise (or counterclockwise), maximum noise in picture.
2. Slowly turn VR counterclockwise (or clockwise) until snow or noise in picture just disappears.

Note: Check operation on strong channels. If overloading occurs (bending, poor color, loss of color sync, etc.) make compromise adjustment.

4.5 MHz TRAP

1. Tune in a local color station preferably a program with the least amount of movement and continuous audio.
2. Adjusting the V. IF DET. OUT Transf. (T105) so that beating with sound signal disappears.

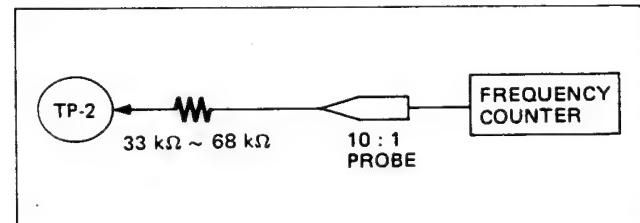
HORIZONTAL WIDTH

Adjust H. WIDTH control coil by turning it with a hexagonal adjusting bar only if RIGHT and LEFT sides of pictures can't be seen.

FOCUS

Adjust FOCUS VR for best overall definition and picture detail at normal brightness and contrast.

REFERENCE FREQUENCY OSCILLATOR



Connect as shown above and adjust C205 (ceramic trimmer capacitor) so that the oscillation frequency is 4500.000 kHz ± 20 Hz or receive UHF AIR at AFC OFF position and adjust C205 so that the AIR becomes just tuning.

HORIZONTAL OSCILLATOR

1. Set the H. FREQ. VR to the mechanical center position.
2. Connect the jumper clip between TP-33B and earth.
3. Adjust the H. FREQ. VR until picture is in view and locks or drift slowly back and forth.
4. Remove the jumper clip.
5. Make sure that the set maintains horizontal sync, when channels are switched.

COLOR SYNC.

1. Receive a color bar signal.
2. Connect two jumper wires between TP-50 and TP-E and between TP-51A and TP-51B.
3. While rotating a TRIMMER CONDENSER using a non-metallic screwdriver, adjust it until the horizontal striped patterns with color become stationary or are slowly moving.
4. Remove jumper clips.
5. Confirm that color sync is not disrupted when channels are switched.

H. CENTER

Centering is completed at the factory, although it may become distorted when CRT is changed.

In such case, selecting the H. CENTER SWITCH moves the picture left or right.
(Some model have H. CENTER TIP.)

VERTICAL CENTER

Centering is completed at the factory, although it may become distorted when CRT is changed.

In such case, selecting the V. CENTER SWITCH moves the picture up or down. (Some model have V. CENTER TIP).

- * Some item of adjustment method is NOT applicable to some model. In such a case omit the item.
- * Adjustments except the following description are mentioned in the service manual test.
- * Use isolation transformer when HOT chassis.

ON SCREEN

1. Display characters on the screen.
2. As shown in the Fig. C-2, adjust the character positions with the CLK VR (On screen adj. VR).
3. Confirm that the characters are also located approximately at the same positions on other channels.

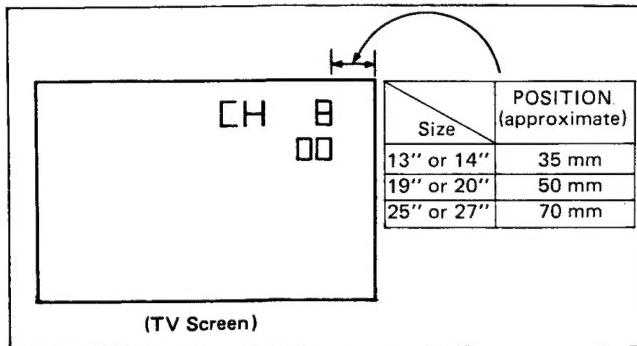


Fig. C-2

■ V. IF

1. Connect a color bar generator to antenna terminal.
(When the signal is too strong, use the attenuator.)
2. Connect DC voltmeter (or tester) between AGC terminal of E. Tuner and earth.
3. Rotate NOISE VR so that RF. AGC voltage becomes DC $4.5\text{ V} \pm 1\text{ V}$.
4. Adjust CW transformer so that the indicator becomes to minimum and also confirm that picture in optimum conditions is obtained.
5. Confirm the adjustment of NOISE VR.

HORIZONTAL LINE

● CUT-OFF SERVICE SWITCH

Select the CUT-OFF SERVICE SWITCH from N to S and a HORIZONTAL LINE will appear.

When returning a monochrome pattern select the CUT-OFF SERVICE SWITCH from S to N and a monochrome pattern will appear.

● CUT-OFF SERVICE TIP

Reconnect the CUT-OFF SERVICE TIP from N to S and a HORIZONTAL LINE will appear.

When returning a monochrome pattern reconnect the CUT-OFF SERVICE TIP from S to N and a monochrome pattern will appear.

● VIDEO CUT WIRER

Connect a jumper wire between TP-35A and TP-35B, after removing the VIDEO CUT WIRE, and a monochrome pattern will appear.

Reconnect the VIDEO CUT WIRE to the normal position, after removing the jumper wire from TP-35A and TP-35B.

■ RF. AFC

1. Connect a color bar generator to antenna terminal.
2. Adjust AFC transformer so that the voltage of TP-16 becomes DC $7.0\text{ V} \pm 0.5\text{ V}$.
(Confirm to swing between about 9 V and 4 V previously.)

■ S. IF

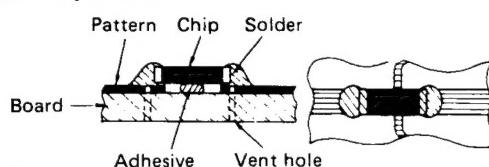
1. Tune in a local station preferably a program with the continuous audio.
2. Adjust TAKE OFF Transf. (T601) and S. IF Transf. (T602) so that the sound becomes to maximum without distortion.

REPLACEMENT OF THE CHIP

- * CHIPS ARE NOT USED ON CERTAIN MODELS. REFER TO THE DESCRIPTIONS ON THIS PAGE ONLY WHEN WORKING ON MODELS ON WHICH CHIPS ARE EMPLOYED.
- * Replacement of the chip on printed circuit board can be performed easily as follows.

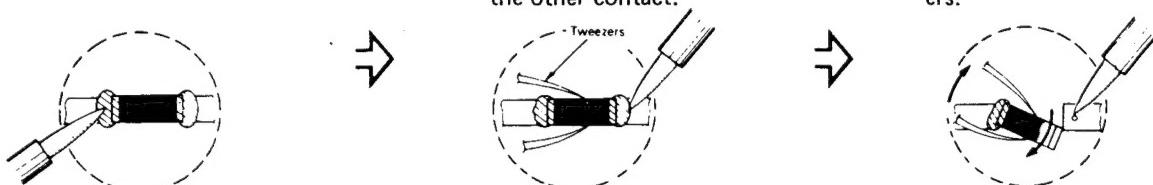
1 When mounted

[Resistor · Capacitor]



2 Removal of the chip

- (1) Remove either of the soldered contacts.
- (2) Hold the chip with tweezers and remove the other contact.
- (3) Work the chip free from the adhesive with tweezers.

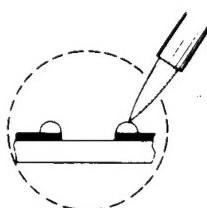


3 Preheating and soldering of chip pieces

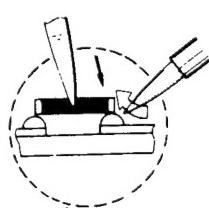
Be sure to preheat chip pieces (except the transistor) especially the capacitor before soldering with hot air, about 150°C (hair dryer or such can be used) for about 2 minutes. Then, immediately solder with an iron of about 30W.

4 Replacing the chip pieces

- (1) Apply the solder to the board first.



- (2) Hold the chip with tweezers and solder it in place, hold the iron at a 45° angle when soldering.

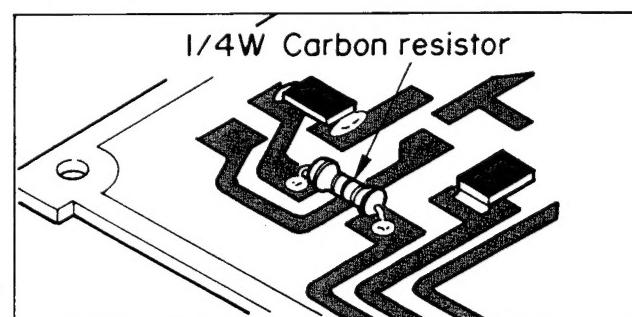


- Discrete parts can be substitutionally mounted as shown in the figure on the right.

Mounting is also possible by passing the wires from the board front side (parts side) through the chip soldering hole (vent hole of registration part).

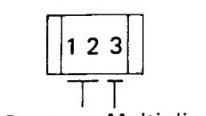
Substitute parts are as follows.

- Chip Metal Glaze Resistor
→ Carbon Resistor 1/4W ±5%
- Chip Ceramic Capacitor
→ Ceramic Capacitor 50V ±5%



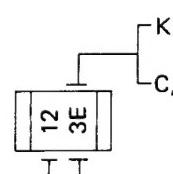
- Decoding of chip parts constant terms

< Chip Metal Glaze Resistor >



$$12 \times 10^3 = 12000\Omega = 12k\Omega$$

< Chip Ceramic Capacitor >



$$12 \times 10^3 = 12000\text{pF} = 0.012\mu\text{F}$$

K, M, Z, P Tolerance of ordinary type
C, P, R, S, T, U .. Temperature coefficient of temperature compensation type

REPLACEMENT PARTS LIST INFORMATION

* UTILIZE THE INFORMATION ON THIS PAGE IN COMBINATION WITH THE REPLACEMENT PARTS LIST.
WHEN ORDERING REPLACEMENT PARTS PLEASE SPECIFY THE PART NUMBER AS SHOWN IN THIS LIST INCLUDING PART NAME, AND MODEL NUMBER. COMPLETE INFORMATION WILL HELP EXPEDITE THE ORDER.

PRODUCT SAFETY NOTE

Components identified by the  symbol in the PARTS LIST and the shaded areas on the Schematic have special characteristics important to safety. Before replacing any of these components read carefully the SAFETY PRECAUTION on Page A of this Service Manual. DO NOT degrade the safety of the set through improper servicing.

1. ABBREVIATED WORD OF RESISTORS AND CAPACITORS
RESISTOR

C R	Carbon Resistor
Comp. R	Composition Resistor
OM R	Oxide Metal Film Resistor
V R	Variable Resistor
MFR	Metal Film Resistor
CMFR	Coating Metal Film Resistor
UNFR	Unflammable Resistor

F R : Fusible Resistor

CH MG R : Chip Metal Glaze Resistor

CAPACITOR

C Cap.	Ceramic Capacitor
M Cap.	Mylar Capacitor
E Cap.	Electrolytic Capacitor

BP E Cap. : Bi-Polar (or Non-Polar)

Electrolytic Capacitor

MM Cap. : Metallized Mylar Capacitor

PP Cap. : Polypropylene Capacitor

MPP Cap. : Metallized PP Capacitor

PS Cap. : Polystyrol Capacitor

Tan. Cap. : Tantal Capacitor

CH C Cap. : Chip Ceramic Capacitor

2. FOLLOWING RESISTORS AND CAPACITORS OF STANDARD ELECTRICAL COMPONENTS ARE OMITTED FROM THIS PARTS LIST. EACH PART NUMBER OF THESE STANDARD REPLACEMENT COMPONENTS IS DEFINED AS FOLLOWS.

Carbon Resistor (C R): Lead form ()

Rating	Part No.
1/2W	Q R D 14 1 J - □ □ □
1/2W	CR Constant term 1/2W Tolerance Lead form

Composition Resistor (Comp. R): Lead form ()

Rating	Part No.
1/2W	Q R C 12 1 K - □ □ □

Comp. R | Constant term
1/2W | Tolerance
Lead form

Mylar Capacitor (M Cap.): Lead form ()

Withstand Voltage	Part No.
50V	Q F M 4 1 H K - □ □ □
100V	M Cap. Constant term Lead form 50V Tolerance
200V	Q F M 4 2 A K - □ □ □

3. DECODING OF TOLERANCE AND CONSTANT TERM
TOLERANCE

J: ±5% K: ±10% M: ±20% N: ±30% H: +50%
-10%

Z: +80% P: +100% R: +30% F: ±1%
-20% -0% -10%

CONSTANT TERM

• Carbon Resistor (1/2W, ±5% Tolerance)

QRD141J - □ □ □

CONSTANT TERM.

- □ □ □	2.7Ω	→ QRD141J-2R7
↑ ↑ ↑		
1 R 0	→ 1.0Ω	47kΩ → 47 × 10 ³ → QRD141J-473
⋮ ⋮ ⋮		
9 R 7	→ 9.7Ω	

1 0 □ → 10□ means 10×10^0 (Ω)

⋮ ⋮ ⋮

8 2 □ → 82□ means 82×10^0 (Ω)

Ceramic Capacitor (C Cap.): Lead form ()

Withstand Voltage	Parts No.
25V	Q C S 1 1 E J - □ □ □
50V	C Cap. 25V Constant term Lead form Tolerance
500V	Q C S 1 2 H P - □ □ □

Electrolytic Capacitor (E Cap.): Lead form ()

Withstand Voltage	Parts No.
6.3V	Q E T 4 0 J R - □ □ □
10V	E Cap. 6.3V Constant term Lead form Tolerance
16V	Q E T 4 1 A R - □ □ □
25V	Q E T 4 1 C R - □ □ □
50V	Q E T 4 1 E R - □ □ □
	Q E T 4 1 H R - □ □ □

Chip Metal Glaze Resistor (CH MG R)

Chip name	Chip No.	Substitutional Part No.
CH MG R	Q R S 1 4 8 J - □ □ □	QRD141J- □ □ □ CR 1/4W ±5%

Chip Ceramic Capacitor (CH C Cap.)

Chip name	Chip No.	Substitutional Part No.
CH C Cap.	Q C S 8 1 H J - □ □ □	QCS11HJ- □ □ □ C Cap 50V ±5%

• Ceramic Capacitor (50 Volts, ±5% Tolerance)

QCS11HJ - □ □ □

CONSTANT TERM.

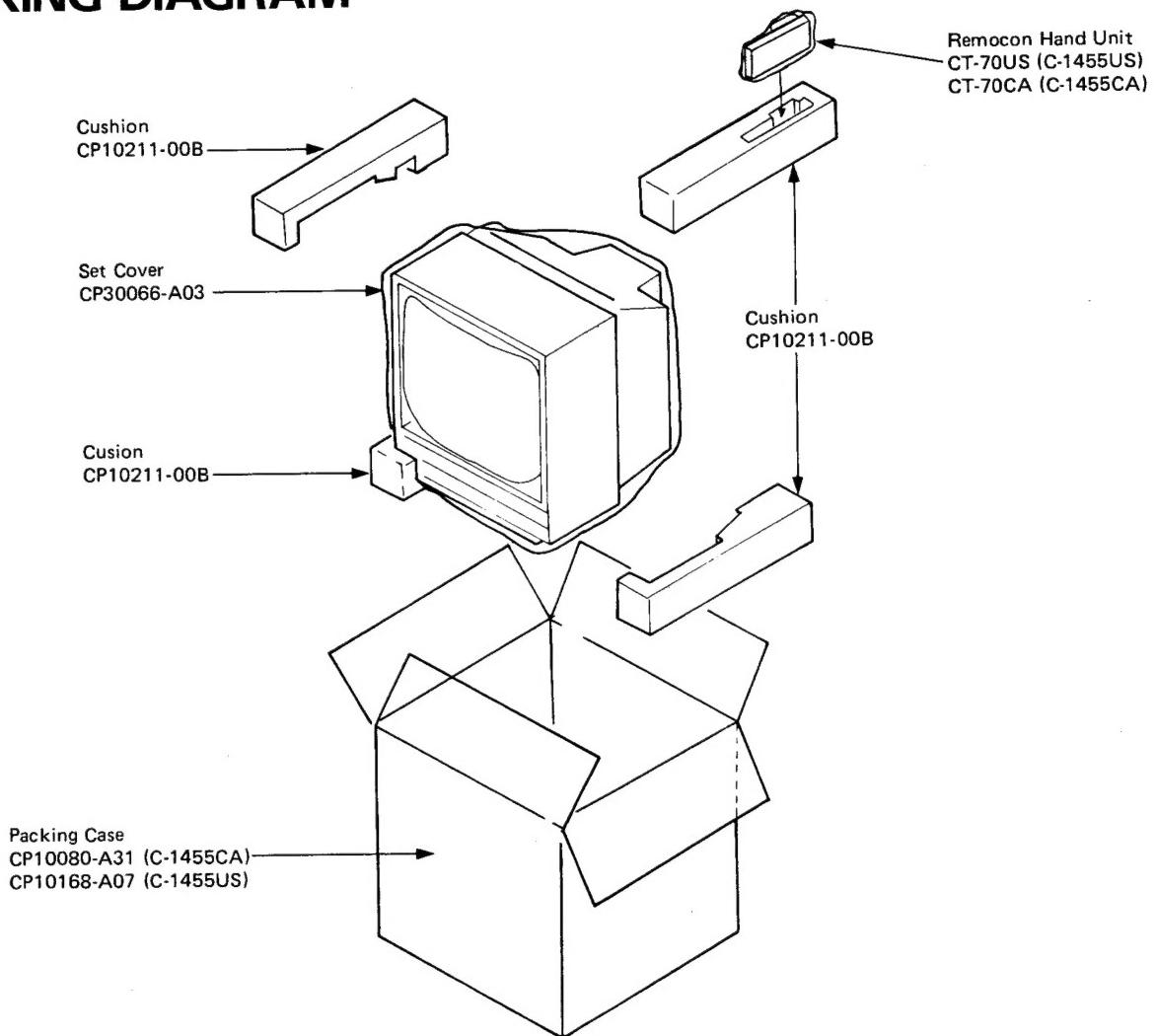
- □ □ □	5pF	→ QCS11HJ-5R0
↑ ↑ ↑	680pF	→ 68 × 10 ¹ → QCS11HJ-681
1 R 0	8.0pF	→ 33 × 10 ² → QCS11HJ-332

1 0 □ → 10□ means 10×10^0 (pF)

⋮ ⋮ ⋮

8 8 □ → 88□ means 88×10^0 (pF)

PACKING DIAGRAM



● SET POSITION WHEN PACKED

Knob	Set Position
Power	OFF
Volume	Optimum sound volume position
Main Power	ON
Tint	Clickstop
Color	"
Picture	"
Bright	Clickstop
Program	OFF
Band Switch	VH

ATTACHED MATTERS (C-1455US)

Customer Notice	: A76332-2
CH. Sheet Ass'y	: CM30863-00B
Inst. Book	: C-1455US-IB-A
Warranty Card	: BT-20048A
75Ω Conv. Adapt.	: CE40128-001
Safty Tips	: BT-20017D
Special R. Card	: BT-20046B
Rec. Keeping Card	: A29639

ATTACHED MATTERS (C-1455CA)

CH. Sheet Ass'y	: CM30863-00B
Inst. Book	: C-1455CA-IB-A
Warranty Card	: BT-20025F
75Ω Conv. Adapt.	: CE40128-001
Safty Tips	: BT-20033